GOAL 1: Clean Air and Global Climate Change

STRATEGIC GOAL: Protect and improve the air so it is healthy to breathe and risks to human health and the environment are reduced. Reduce greenhouse gas intensity by enhancing partnerships with businesses and other sectors.

BACKGROUND AND CONTEXT

Based on air quality trends measured at more than 5000 monitoring sites across the U.S., air quality has improved steadily since the 1970s. This improvement has occurred even as Gross Domestic Product has increased by 164 percent, miles traveled by cars and trucks have increased 155 percent, energy consumption has increased by 42 percent; and population has increased by 38 percent.[1]

Concerted efforts and steady progress have achieved cleaner, healthier air, but air pollution continues to be a human health and environmental problem in the U.S. and around the world. The average adult breathes over 3,400 gallons of air every day. Children are more susceptible to air pollution because they breathe even more air per pound of body weight than adults. Children also are at greater risk because they are more active outdoors and their lungs are still developing. The elderly are more sensitive to air pollution because they often have heart or lung disease.[2]

Pollutants in the air cause cancer or other serious health effects, including respiratory, developmental, and reproductive problems. Certain pollutants, such as some metals and certain organic chemicals, that are emitted from industrial and other sources can be deposited into water bodies and magnified through the food web, adversely affecting fish-eating humans and animals. Air pollution also damages crops and forests, makes soil and waterways more acidic, reduces visibility, and accelerates corrosion of buildings and monuments.[3]

In addition, air pollutants diminish the protective ozone layer in the upper atmosphere. Human activities also affect the mixture of gases in the atmosphere and contribute to the potential for world climate change.

Outdoor Air Pollution: The Clean Air Act[4] addresses three general categories of outdoor air pollution: "criteria" pollutants, air toxics, and acid rain. Criteria pollutants include six common pollutants: particulate matter (PM), ozone, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and lead, for which EPA sets National Ambient Air Quality Standards to protect public health and the environment. Air toxics, also called hazardous air pollutants (HAPs), are pollutants that are known or suspected to cause cancer or other serious health problems, such as reproductive effects or birth defects, or adverse ecological effects. The Clean Air Act lists 188 HAPs. Examples include: dioxin, mercury, benzene, toluene, and xylene. Acid rain is formed when SO_2 and nitrogen oxides (NO_x) react in the atmosphere with water, oxygen, and oxidants to form acid droplets.

The paragraphs below summarize the health and environmental effects associated with the six criteria pollutants, air toxics, and acid rain.[5]

- Particulate matter. PM is associated with a wide variety of health and environmental problems. When exposed to higher concentration of fine PM, people with existing lung or heart diseases – such as asthma, chronic obstructive pulmonary disease, congestive heart disease, or coronary artery disease – are at increased risk of health problems requiring hospitalization or of premature death. Similarly, children and people with existing lung disease may not be able to breathe as deeply or vigorously as they normally would and they may experience symptoms such as coughing and shortness of breath. Fine PM can increase susceptibility to respiratory infections and can aggravate existing

[1] U.S. EPA, *Latest Findings on National Air Quality: 2002 Status and Trends Report*, 454/K-03-001 (August 2003), http://www.epa.gov/airtrends/.
[2] Ibid
[3] Ibid

[4] Clean Air Act Title 1, Part A and Part D, Subparts 3 and 5 (42 U.S.C. 7401-7431, 7512-7512a, 7514-7541a)(15 U.S.C. 2605); Clean Air Act Amendments Title II (42 U.S.C. 7521-7590); Clean Air Act Amendments, Title IV (42 U.S.C. 7651-7661); Clean Air Act (42 U.S.C. 7401-7671q)
[5] *Latest Findings on National Air Quality: 2002 Status and Trends Report*

respiratory diseases, such as asthma and chronic bronchitis, causing more use of medication and more doctor visits.

PM also is a major cause of haze and reduced visibility in parts of the U.S., including many of our national parks. Particles can be carried over long distances by wind and then settle on ground or water. The effects of certain PM settling may include acidifying lakes and streams, changing the nutrient balance in coastal waters and watersheds, depleting the nutrients in soil, damaging sensitive forests and farm crops, and decreasing the diversity of ecosystems.

- Ground-level ozone (smog). When breathed at any concentration, ozone can irritate and inflame a person's airways. Health effects attributed to exposures to ozone, generally while individuals are engaged in moderate or heavy exertion, include significant decreases in lung function and increased respiratory symptoms such as chest pain and cough as concentrations rise. Exposures to ozone result in lung inflammation, aggravate respiratory diseases such as asthma, and may make people more susceptible to respiratory effects. Other at-risk groups include adults who are active outdoors and individuals with respiratory disorders such as asthma.

Ground-level ozone interferes with the ability of many plants to produce and store food. This reduces crop and forest yields by making plants more susceptible to disease, insects, other pollutants, and harsh weather. Ozone also damages the leaves of trees and other plants, affecting the appearance of cities, national parks, and recreation areas.

- Sulfur dioxide. Peak levels of SO_2 can cause temporary breathing difficulty for people with asthma who are active outdoors. Longer-term exposure to a combination of SO_2 and fine particles can cause respiratory illness, alter the defense mechanisms of lungs, and aggravate cardiopulmonary disease. People who may be most susceptible to these effects include individuals with cardiovascular disease or chronic lung disease, as well as children and the elderly. SO_2 also is a major contributor to acidic deposition.

- Nitrogen dioxide. Exposure to NO_2 causes respiratory symptoms such as coughing, wheezing, and shortness of breath in children and adults with respiratory diseases such as asthma. Even short exposures to NO_2 affect lung function. NO_2 also contributes to acidic deposition, eutrophication in coastal waters, and visibility problems.

- Carbon monoxide. The health threat from even low levels of CO is most serious for those who suffer from heart disease, like angina, clogged arteries, or congestive heart disease. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise. Even healthy people can be affected by high levels of CO. People who breathe higher levels of CO can develop vision problems, experience reduced ability to work or learn, have reduced manual dexterity, and have difficulty performing complex tasks. CO is most dangerous in enclosed or confined spaces and will cause death.

- Lead. Lead causes damage to the kidneys, liver, brain and nerves, and to other organs. Excessive exposure to lead causes seizures, mental retardation, behavioral disorders, memory problems, and mood changes. Low levels of lead damage the brain and nerves in fetuses and young children, resulting in learning deficits and lowered IQ.

- Air toxics: Air toxics or HAPs, are pollutants that are known or suspected to cause cancer or other serious health problems, such as reproductive effects or birth defects, or adverse environmental effects. HAPs are emitted from thousands of sources, including automobiles, utilities, and industries. HAPs also can contribute to the levels of PM and volatile organic compounds (VOCs), precursors to ozone. Adverse effects to human health and the environment due to HAPs can result from even low level exposures to air toxics from individual facilities, exposures to mixtures of pollutants found in urban settings, or exposures to pollutants emitted from distant sources that are transported through the atmosphere over regional, national, or even global airsheds.

Compared to information for the six criteria pollutants, the information about the ambient concentrations of HAPs and their potential health effects is relatively incomplete. Most of the information on the potential health effects of these pollutants is derived from experimental data. Of the 188 HAPs, almost 60 percent are classified by the Clean Air Act (section 112 (f)(2)(A)) as known, probable, or possible carcinogens. One of the often-documented ecological concerns associated with toxic air pollutants is the potential to damage aquatic ecosystems.

- Acid rain. Emissions of SO_2 and NO_x react in the atmosphere and fall to earth as acid rain, causing acidification of lakes and streams and contributing to the damage of trees at high elevations. Acid deposition also accelerates the decay of building materials and paints and contributes to degradation of irreplaceable cultural objects, such as statues and sculptures. NO_x deposition contributes to eutrophication of coastal waters, such as the Chesapeake Bay and Tampa Bay. Before falling to earth, SO_2 and NO_x gases form fine particles (fine PM) that affect public health by contributing to premature mortality, chronic bronchitis, and other respiratory problems.

Indoor Air Pollution: Indoor air levels of many pollutants may be two to five times, and occasionally more than 100 times, higher than outdoor levels. There is no comprehensive monitoring of the quality of indoor air in the U.S. and the actual levels for many pollutants are not well understood. Indoor air pollutants are of particular concern because most people spend as much as 90% of their time indoors. Common sources can include burning kerosene, wood, or oil; smoking tobacco products; releases from household cleaners, pesticides, building materials; and radon. Inadequate ventilation can increase indoor pollutant levels by not bringing in enough outdoor air to dilute emissions from indoor sources and by not carrying indoor air pollutants out of the home. High temperatures and humidity levels can also increase concentrations of some pollutants.

Poor indoor air quality can cause short-term problems, including headaches, fatigue, dizziness, nausea, and a scratchy throat. Other effects include cancer – particularly from long-term exposure to high secondhand smoke and radon concentrations – and aggravation of chronic respiratory diseases such as asthma. Exposure to naturally occurring radon gas is the second leading cause (after smoking tobacco) of lung cancer among Americans.[6]

Climate Change: The buildup of greenhouse gases—primarily carbon dioxide, methane, and nitrous oxide—has heat-trapping properties that may impact climate on Earth. These potential regional climate changes could alter forests, crop yields, and water supplies. These changes could also threaten human health, and harm birds, fish, and many types of ecosystems.

Stratospheric Ozone Depletion: A protective ozone layer is located in the stratosphere about six to 30 miles above the Earth's surface. This layer protects humans and other species from the sun's harmful ultraviolet radiation (UV). This protective shield is being damaged by chemicals such as chlorofluorocarbons (CFCs), halons, and methyl bromide, and can lead to harmful health effects such as skin cancer and cataracts.[7] Increased UV also can lead to reduced crop yield and disruptions in the marine food chain.

Ozone depletion and climate change are separate environmental issues but are related in some ways. Specifically, some substances that deplete the ozone layer also are potent and very long-lived greenhouse gases that absorb outgoing radiation and warm the atmosphere.

Radiation: Radiation occurs naturally (e.g., radon), but we also use radioactive materials in electricity generation, in industrial processes, and in medical diagnoses and treatments. Any activity that produces or uses radioactive materials generates radioactive waste. Mining, nuclear power generation, and various processes in industry, defense, medicine, and scientific research produce byproducts that include radioactive waste. Radioactive waste can be in gas, liquid, or solid form, and the level of radioactivity can vary. The waste can remain radioactive for a few hours or several months or even hundreds of thousands of years. Frequent exposures

[6] Institute of Medicine, *Clearing the Air: Asthma and Indoor Air Exposures* (Washington, DC: The National Academy Press, 200). Available at http://books.nap.edu/books/0309064961/html/R1.html.

[7] June 1999, "Synthesis Report of the Reports of the Scientific, Environmental Effects, Technology and Economic Assessment Panels of the Montreal Protocol: A Decade of Assessments for Decision Makers Regarding the Protection of the Ozone Layer: 1988 - 1999" ; January 2003, Report of the Montreal Protocol Science Assessment Panel, "Scientific Assessment of Ozone Depletion: 2002"; March 2003, Report of the Montreal Protocol Environmental Effects Assessment Panel, "Environmental Effects of Ozone Depletion: 2002".

to radiation can cause cancer and other adverse health effects.

Science and Research: EPA relies on sound science in its clean air programs. EPA uses sound science to determine the relative risks that air pollution poses to human health and the environment. In addition, the Agency utilizes science in an attempt to identify the best means to detect, abate and avoid environmental problems associated with air pollutants.

MEANS AND STRATEGY

The air problems that now remain are some of the most difficult to solve. EPA's strategy to address the overall goals of the clean air program includes a combination of national and local measures that reflect the different roles of Federal, state, Tribal, and local governments. EPA, states, and local agencies work together as partners to meet clean air goals cost-effectively by employing an array of regulatory, market-based, and voluntary approaches and programs. Federal assistance and leadership are essential for developing and implementing cooperative programs to prevent and control air pollution; for ensuring that national standards are met; and for providing tools for states, Tribes, and local communities to use in preparing and implementing their clean air plans and programs.

Healthier Outdoor Air: Problems with broad regional, national or global impact – emissions from power plants and other large sources, pollution from motor vehicles and fuels, and stratospheric ozone depletion – are best handled primarily at the multi-state, regional, or Federal level. A national approach allows for the use of traditional, regulatory tools where appropriate, and enables EPA to implement innovative, market-based techniques such as emissions trading, banking, and averaging, and other national programs cost-effectively.

States, Tribes, and local agencies can best address the regional and local problems that remain after Federal measures have been fully applied. Many of these approaches employ innovative techniques, such as diesel retrofits and community-based approaches to toxics that are well-suited to the local nature of many air-related problems. EPA works closely with public- and private-sector partners and stakeholders to develop the tools – such as monitoring, modeling, and emission inventories – that allow states, Tribes, and localities to address these more localized problems.

EPA will also work to build the institutional capacity within developing countries and regionally manage air pollution, focusing on those countries that have demonstrated potential and commitment to affect human health and the environment globally. Programs include those that address clean fuels, reduction of mercury and lead emissions, training on various air quality issues, and partnering with existing clean air initiatives.

To improve air quality and address the highest health and environmental risks, EPA will proceed with Federal stationary and mobile source programs aimed at achieving large, nationwide, cost-effective reductions in emissions of PM and its contributors such as SO_2, NO_x, and elemental and organic carbon; ozone-forming NO_x; and volatile organic compounds (VOCs).

The President's Clear Skies Initiative is a cornerstone of the EPA strategy. The proposed legislation, re-introduced in the Congress in February 2003, would create a mandatory program that is designed to reduce dramatically power plant emissions of SO_2, NO_x, and mercury, three of the most harmful air pollutants from power generators, from FY 2000 levels.[8] (Alternatively, the Interstate Air Quality and Utility Mercury Reduction Rules are integrated air rules proposed by EPA in December 2003 to achieve many of Clear Skies' objectives absent new legislation.).[9] Both Clear Skies and the proposed integrated air rules would create a market-based program, with results guaranteed by emissions caps instituted over a period of time, an approach that proved successful in reducing acid rain. As the Clear Skies Initiative moves forward, through enactment of new legislation or promulgation of the proposed Interstate Air Quality and Utility Mercury Reduction Rules, EPA will continue to implement the Acid Rain Program to reduce SO_2 and NO_x emissions from electric power generators and address the interstate transport of ozone and NO_x through the NO_x Budget Program, a multi-state emissions allowance trading program under the NO_x SIP Call. In addition, EPA is implementing national programs that will dramatically reduce future emissions from a wide range of mobile sources, including cars, minivans, sport utility vehicles (SUVs), trucks, buses, motorcycles, and nonroad engines.

[8] Senate and House of Representatives, Clear Skies Legislation Act of 2002, S. 2815 (July 29, 2002) and H.R. 5266 (July 26, 2002), http://www.epa.gov/clearskies/bill.pdf

[9] 40CFR Parts 51, 72, 75, 96 Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Interstate Air Quality Rule) web site www.epa.gov/interstateairquality/

EPA will propose whether to update the particulate matter standards in FY 2005 and will continue the work necessary to propose whether to update the ozone standard in FY 2006. EPA also will provide guidance and technical support to states, Tribes and local communities to help meet multiple air quality standards and regional haze progress goals, especially for those pollutants that share common precursors or emission sources.

Healthier Indoor Air: EPA implements two primary strategies to meet its human health objective for indoor air quality, increasing public awareness and increasing partnerships with non-governmental and professional entities. EPA raises public awareness of actual and potential indoor air risks so that individuals can take steps to reduce exposure. Outreach activities, in the form of educational literature, media campaigns, hotlines, and clearinghouse operations, provide essential information about indoor air health risks not only to the public, but to the professional and research communities as well.

Underpinning EPA's outreach efforts is a strong commitment to environmental justice, community-based risk reductions, and customer service. Through partnerships, EPA disseminates multi-media materials encouraging individuals, schools, and industry to take action to reduce health risks in their indoor environments. In addition, EPA uses technology transfer to improve the ways in which all types of buildings, including schools, homes, and workplaces, are designed, operated, and maintained. To support these voluntary approaches, EPA incorporates the most current science available as the basis for recommending ways that people can reduce exposure to indoor contaminants.

Reduce Greenhouse Gas Intensity: In 2002, President Bush announced a new approach to global climate change designed to harness the power of the marketplace and technological innovation. The President committed America to cut greenhouse gas intensity by 18 percent over the next decade.[10] EPA's voluntary climate programs play a major role in meeting this goal by working in partnership with businesses and other sectors through programs that deliver multiple benefits while improving overall scientific understanding of climate change and its potential consequences. The core of EPA's climate change efforts are voluntary government/industry partnership programs – such as the ENERGY STAR program - designed to capitalize on the tremendous opportunities available to consumers, businesses, state and local governments, and organizations to make sound investments in energy efficient equipment and practices. These voluntary programs remove barriers to existing and emerging technologies in the marketplace, resulting in faster deployment of energy efficient technology into the residential, commercial, transportation, and industrial sectors of the economy.

Through its Clean Automotive Technology (CAT) program, EPA develops unique new technologies with high potential for improving air quality and dramatically improving vehicle efficiency. Through partnerships with industry, significant elements of EPA's technologies will be introduced commercially by vehicle manufacturers before the end of the decade. In addition, EPA works with other key stakeholders in promoting the development and commercialization of fuel cell technology in support of U.S. environmental, energy, and national security goals.

Protect the Ozone Layer: EPA's strategy for restoring the ozone layer includes carrying out a program that includes domestic rules and international technology transfer. As a signatory to the Montreal Protocol on Substances that Deplete the Ozone Layer, the U.S. is obligated to regulate and enforce the terms of the treaty domestically. In accordance with this treaty and related Clean Air Act requirements, EPA will continue to implement the domestic rule-making agenda for the reduction and control of ozone-depleting substances (ODSs) and enforce rules controlling their production, import, and emission. This includes combining market-based regulatory approaches with sector-specific technology guidelines and facilitating the development and commercialization of alternatives to methyl bromide and HCFCs. EPA will strengthen outreach efforts to ensure efficient and effective compliance, and continue to identify and promote safer alternatives to curtail ozone depletion. To help reduce international emissions, EPA will assist with the transfer of technology to developing countries and work with them to accelerate the phase-out of ODSs. EPA estimates that the worldwide phase-out of ODS will save 6.3 million lives from fatal cases of skin cancer, avoid 299 million cases of nonfatal skin cancers, and avoid 27.5 million cases of cataracts in the U.S. alone between 1990 and 2165.

Because the ozone layer is not expected to recover until the middle of this century at the earliest, the public will continue to be exposed to higher

[10] The White House, Office of the Press Secretary, President Announces Clear Skies & Global Climate Change Initiatives (February 14, 2002), http://www.whitehouse.gov/news/releases/2002/02/20020214-5.html

levels of UV radiation than existed prior to the use and emission of ODS. Recognizing this and the public's current sun-exposure practices, EPA will continue education and outreach efforts to encourage behavioral changes the primary means of reducing UV-related health risks.

Radiation: EPA continues to meet the statutory mandates for managing radiation waste and controlling radioactive emissions and to fulfill its responsibilities under Presidential Decision Directives for radiological emergency preparedness and response. These responsibilities form the core of our strategy to protect the public and the environment from unnecessary exposure to radiation. EPA works with states, Tribes, and industry to develop innovative training, public information and voluntary programs to minimize these exposures.

Science and Research: To support achievement of its clean air objectives and the overall goal of clean air for American communities and surrounding ecosystems, EPA will ensure that efforts to reduce environmental risks are based on the best available scientific information. In addition, EPA will continue to integrate critical scientific assessment with policy, regulatory and non-regulatory activities.

EPA's air pollution research supports the Agency's mandated responsibilities under the Clean Air Act. This research falls into two distinct groups: 1) research supporting the development and achievement of the national ambient air quality standards (NAAQS), and 2) research on hazardous air pollutants. NAAQS-related research focuses on tropospheric ozone and particulate matter (PM), while the Air Toxics Research program provides the scientific underpinnings of the Agency's activities to reduce hazardous air pollutants (HAPs) as identified in the Clean Air Act.

PM research provides methods, models, and data on the health risks associated with exposure to PM, alone and in combination, focusing on exposures, health effects, mechanisms of injury, and identification of PM components that affect public health. In addition, both PM and tropospheric ozone research provide implementation tools to support efforts by industry, state, Tribal, and local regulators to develop and improve State Implementation Plans (SIPs) to attain the NAAQS.

Research on air toxics investigates the root causes of the environmental and human health problems in urban areas related to these pollutants. Efforts in this area provide the necessary health effects data, measurements, methods, models, information, and technical support to Federal, state, Tribal, and local regulators and industry to estimate human health effects and aggregate exposures to hazardous air pollutants. Research also supports atmospheric and emission modeling in order to estimate fate, ambient concentrations, and mobile source emissions of air toxics at a more refined scale. With this information, the Agency will be in a better position to determine risk and develop alternative strategies for maximizing risk reduction.

Several mechanisms are in place to ensure a high-quality air research program at EPA. The Research Strategies Advisory Committee (RSAC) of EPA's Science Advisory Board (SAB), an independent chartered Federal Advisory Committee Act (FACA) committee, meets annually to conduct an in-depth review and analysis of EPA's Science and Technology account. The RSAC provides its findings to the House Science Committee and sends a written report on the findings to EPA's Administrator after every annual review. Moreover, EPA's Board of Scientific Counselors (BOSC) provides counsel to the Assistant Administrator for the Office of Research and Development (ORD) on the operation of ORD's research program. Also, under the Science to Achieve Results (STAR) program all research projects are selected for funding through a rigorous competitive external peer review process designed to ensure that only the highest quality efforts receive funding support. Our scientific and technical work products must also undergo either internal or external peer review, with major or significant products requiring external peer review. The Agency's Peer Review Handbook (2nd Edition) codifies procedures and guidance for conducting peer review.

STRATEGIC OBJECTIVES AND FY 2005 ANNUAL PERFORMANCE GOALS

Healthier Outdoor Air

- The number of people living in areas with monitored ambient ozone concentrations below the NAAQS for the 1-hour ozone standard will increase by 4% (relative to 2004) for a cumulative total of 53% (relative to 1992).
- The number of people living in areas with monitored ambient PM concentrations below the NAAQS for the PM-10 standard will increase by 1% (relative to 2004) for cumulative total of 7% (relative to 1992).
- Air toxics emission nationwide from stationary and mobiles sources combined will be reduced by an additional 1% of the updated 1993 baseline of 6.0 million tons for a cumulative reduction of 38%.

Healthier Indoor Air

- 843,300 additional people will be living in homes with healthier indoor air.
- 1,312,500 students, faculty and staff will experience improved indoor air quality in their schools.

Protect the Ozone Layer

- Restrict domestic consumptio0n of class II HCFCs below 9,906 ODP-weighted metric tons (ODP MTs) and restrict domestic exempted production and import of newly produced class I CFCs and halons below 10,000 ODP MTs.

Reduce Greenhouse Gas Intensity

- Greenhouse gas emissions will be reduced from projected levels by approximately 90 MMTCE per year through EPA partnerships with businesses, schools, state and local governments, and other organizations.

Radiation

- Certify that 40,000 55-gallon drums of radioactive waste (containing approximately 120,000 curies) shipped by DOE to the Waste Isolation Pilot Plant are permanently disposed of safely and according to EPA standards.

Enhance Science and Research

- Transfer hybrid powertrain components, originally developed for passenger car applications, to meet size, performance, durability, and towing requirements of Sport Utility Vehicle and urban delivery vehicle applications with an average efficiency improvement of 30% over the baseline.

HIGHLIGHTS

Ensure Healthier Outdoor Air

In FY 2005, EPA will significantly expand its efforts to reduce children's exposure to diesel exhaust and the amount of air pollution created by diesel school buses through its Clean School Bus USA program. More than 24 million children in the US ride a bus to and from school every day and research has found that these children can be exposed to high levels of diesel exhaust. The Agency's Clean School Bus USA program is designed to help reduce this exposure by providing grant funds to State, tribal, or local government entities to upgrade (or "retrofit") newer school buses with better emission control technologies and/or fuel them with cleaner fuels or to replace the oldest school buses in the fleet with new, less polluting buses. In FY 2005, EPA will develop a grant solicitation process that will award these funds on a competitive basis.

In FY 2005, EPA will complete an assessment of how sources create Fine PM in the air and, with along with mercury emissions, the effect on downwind areas. This assessment will support the Fine PM NAAQS implementation, the Interstate Air Quality Rule and the Utility Mercury Reductions Rule. This work will also support the President's legislative proposal on Clear Skies. EPA will begin implementation efforts for both the Interstate Air Quality Rule and the Utility Mercury Reductions Rule.

The Agency will also continue to work with states, Tribes and local communities to reduce exposure to air pollution through implementation of the National Ambient Air Quality Standards. We will provide technical support to states in developing State Implementation Plans to aid them in considering the transport of pollution on a regional level in their plans. For particulate matter, EPA will be finalizing attainment designations while working with states and local areas to develop control strategies to reduce emissions. For ozone, since designation will be finalized in 2004, the Agency will be supporting SIP development efforts while working with localities on innovative measures to provide early emission reductions.

For the HAPs, FY 2005 will be a critical year for implementing the national air toxics strategy. The Agency will continue its transition from a technology-based to a risk-based control program. The Agency is still required to set technology-based standards for area sources.

In FY 2005, EPA will, as required by the Clean Air Act, continue the extensive residual risk analyses for already promulgated maximum achievable control technology (MACT) standards to determine if additional standards are necessary to reduce the remaining risks from these sources. The Agency will continue to develop the state, local, and Tribal component of the Air Toxics Program so that state, local, and Tribal agencies can address emission issues that are of concern on a state-wide, area-wide, or community-wide basis. As part of this effort, EPA will continue to support community assessment and risk reduction projects. The EPA will release an integrated final version of the national emission inventory (NEI) using data collected from 2002. This integrated inventory will include air toxics emissions data for analyzing public health risks from air toxics and strategies to reduce them, and to manage the

risks posed by air toxics emission. The Agency will continue to develop the national ambient air toxic network to improve characterization of both national and community air toxic levels. Also in FY 2005, we will be promulgating the Utility Mercury Reductions Rule. This program may utilize a cap and trade approach that would allow emissions trading in lieu of a MACT standard which is less flexible and more costly. (The proposed rule seeks comment on both the cap and trade and MACT approaches.)

In FY 2005, EPA will establish and implement Federal standards to require cleaner motor vehicles, nonroad equipment, locomotives, marine engines, and fuels that are cost-effective and technically feasible. The Agency will continue implementation of the Tier II and gasoline sulfur standards. The Agency will also continue work on the 2007 heavy-duty highway engine and diesel sulfur requirements. In addition, EPA is promulgating new standards and fuel requirements for nonroad diesel fuel that will take effect for new engines starting as early as 2008.

In addition, EPA will continue to monitor industry compliance with vehicle, engine, and fuel standards, and to proceed with advancements in vehicle emission control technologies. The type and amount of testing required at EPA's National Vehicle and Fuel Emissions Laboratory continues to expand greatly to meet the much more stringent and complex regulations for cars, heavy-duty diesel engines, and gasoline and diesel fuels.

Ensure Healthier Indoor Air

In FY 2005, EPA will build on the success of its national "Indoor Air Quality (IAQ) Tools for Schools" (TfS) program and expand implementation of this program to more schools. Adoption of EPA's low-cost/no-cost guidelines for proper operation and maintenance of school facilities results in healthier indoor environments for all students and staff, but is of particular help to children with asthma, lessening the degree to which they are exposed to indoor asthma triggers. By increasing the number of schools where TfS indoor air quality guidelines are adopted and implemented, healthier indoor air will be provided for over a million students, staff, and faculty.

EPA expects, as a result of Agency programs, that over three quarters of a million people will be living in healthier residential indoor environments in FY 2005. Part of meeting this goal includes expanding the Agency's successful education and outreach efforts to the public about sound indoor environmental management techniques with respect to asthma. In addition, the Agency will continue to focus on ways to assist the health-care community to raise its awareness of, and attention it pays to, indoor asthma triggers and their role in provoking asthma attacks in those with the disease. EPA, in conjunction with the Department of Health and Human Services (HHS), will continue to seek opportunities to interact with managed care organizations and health insurers to promote effective asthma care practices and to encourage greater emphasis on avoidance of asthma triggers, as part of a comprehensive asthma treatment regimen.

Greenhouse Gases

The President's greenhouse gas program builds on the accomplishment of EPA's voluntary climate programs. EPA's voluntary climate change programs have made significant progress to date. However, opportunities remain to achieve further pollution reductions and energy bill savings from energy efficiency programs and greater use of cost-effective renewable energy. In the U.S., energy consumption causes more than 85 percent of the major air emissions such as NO_x, SO_2, and CO_2. At the same time, American families and businesses spend over $600 billion each year on energy bills.

In FY 2005, EPA will continue to build upon its successful partnership programs such as ENERGY STAR, the clean energy programs, Climate Leaders, SmartWay Transport Partnership, and Best Workplaces for Commuters programs. Under these innovative programs we will expand our work with companies to encourage them to take on new voluntary commitments to reduce greenhouse gas emissions.

Stratospheric Ozone

To protect the earth's stratospheric ozone layer in accordance with the United States' commitment to the Montreal Protocol, EPA will continue to regulate ozone-depleting compounds, foster the development and use of alternative chemicals in the U.S. and abroad, inform the public about the dangers of overexposure to UV radiation, and use pollution prevention strategies to require the recycling of ozone-depleting substances (ODS) and hydrofluorocarbons.

Radiation

In FY 2005, EPA will continue to protect people and the environment from harmful and avoidable exposure to radiation by oversight of radioactive waste disposal in the Waste Isolation Pilot Plant, setting protective limits on radioactive

emissions, providing guidance and training to other Federal and state agencies in preparing for domestic emergencies and other incidents that may involve radiation, and develop guidance for cleaning up radioactively-contaminated Superfund sites. We will ensure that the Agency employs appropriate methods to manage radioactive releases and exposures. These include health-risk site assessments; risk modeling, cleanup, and waste management activities; voluntary programs to minimize exposure to radiation in commercial products and industrial applications; national environmental radiation monitoring; radiological emergency response; and provision of Federal guidance to our international, Federal, state, and local partners.

Enhance Science and Research

The Tropospheric Ozone and Particulate Matter (PM) Research Programs will upgrade methods and models to guide states in the development of State Implementation Plans (SIPs) used to achieve the NAAQS. In FY 2005, the Agency will release an upgraded version of the Models-3 Community Multi-scale Air Quality (CMAQ) modeling system with upgraded mechanisms for speeding up the model run time. This will be an important tool for developing state and tribal SIPs. PM research will continue to strengthen the scientific basis for the periodic review of the PM NAAQS, through work that includes epidemiological and exposure studies. The PM program will also develop tools and methods to characterize PM sources and health effects that will move the Agency toward its objective of reducing Americans' exposure to PM. Important products of the FY 2005 PM research program will include improved receptor models and data on chemical compounds to help identify sources that contribute to ambient PM so that states and tribes can develop more effective control strategies

Air toxics research provides information on effects, exposure, and source characterization, as well as other data to quantify existing emissions and to identify key pollutants and strategies for cost-effective risk management. In FY 2005, research will focus on providing health hazard and exposure methods, data, and models to enable the Agency to reduce uncertainty in risk assessments, and the production of tools that enable national, regional, state, or local officials to identify and implement cost-effective approaches to reduce risks from sources of air toxics.

EXTERNAL FACTORS

Stakeholder participation: To achieve clean air, EPA relies on the cooperation of Federal, state, Tribal, and local government agencies; industry; non-profit organizations; and individuals. Success is far from guaranteed, even with the full participation of all stakeholders. EPA has significant work to accomplish just to reach the annual targets that lead to the longer-term health and environmental outcomes and improvements that are articulated in the Clean Air goal. Meeting the Clean Air goal necessitates a strong partnership among all the stakeholders, but in particular among the states, Tribes, and EPA; the Environmental Council of States; and organizations of state and local air pollution control officials. EPA will be working with various stakeholders to encourage new ways to meet the challenges of "cross regional" issues as well as to integrate programs to address airborne pollutants more efficiently.

Environmental factors: In developing clean air strategies, states, Tribes, and local governments assume normal meteorological patterns. As EPA develops standards and programs to achieve the Clean Air goal, it has to consider weather as a variable in the equation for implementing standards and meeting program goals. For example, even if an area is implementing a number of air pollution control programs under normal meteorological patterns, a hot humid summer may cause an area to exceed standards for days at a time, thereby exposing the public to unhealthy air.

Resource Summary
(Dollars in thousands)

	FY 2003	**FY 2004**	**FY 2005**	**FY 2005 Req. v.**
	Actuals	**Pres. Bud.**	**Pres. Bud.**	**FY 2004 Pres Bud**
Clean Air and Global Climate Change	**$882,811.6**	**$915,983.1**	**$1,004,615.5**	**$88,632.4**
Healthier Outdoor Air	$557,907.1	$579,059.2	$659,876.2	$80,817.1
Healthier Indoor Air	$44,299.1	$48,042.5	$48,954.7	$912.1
Protect the Ozone Layer	$18,145.2	$19,069.4	$21,813.7	$2,744.3
Radiation	$30,046.8	$34,858.9	$34,718.0	($141.0)
Reduce Greenhouse Gas Intensity	$99,836.4	$106,936.5	$108,389.3	$1,452.9
Enhance Science and Research	$132,577.0	$128,016.6	$130,863.6	$2,847.1
Total Workyears	2,702.6	2,737.9	2,756.6	18.7

OBJECTIVE: Healthier Outdoor Air

Through 2010, EPA and its partners will protect human health and the environment by attaining and maintaining health-based air quality standards and reducing the risk from toxic air pollutants.

Resource Summary
(Dollars in Thousands)

	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	FY 2005 Req. v. FY 2004 Pres Bud
Healthier Outdoor Air	**$557,907.1**	**$579,059.2**	**$659,876.2**	**$80,817.1**
Environmental Program & Management	$231,825.3	$250,509.5	$261,196.7	$10,687.3
Science & Technology	$75,701.8	$81,059.9	$85,302.2	$4,242.3
State and Tribal Assistance Grants	$243,116.5	$239,600.0	$304,600.0	$65,000.0
Building and Facilities	$4,583.4	$4,645.2	$5003.2	$358.0
Inspector General	$2,680.1	$3,244.6	$3,774.1	$529.5
Total Workyears	1,706.6	1,751.5	1,765.9	14.4

Program Project
(Dollars in Thousands)

	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	FY 2005 Req. v. FY 2004 Pres Bud
Clean School Bus	$0.0	$1,500.0	$65,000.0	$63,500.0
Categorical Grant: State and Local Air Quality Management	$229,633.4	$228,550.0	$228,550.0	$0.0
Children and other Sensitive Populations	$50.6	$235.0	$127.0	($108.0)
Categorical Grant:Tribal Air Quality Management	$13,483.1	$11,050.0	$11,050.0	$0.0
Clean Air Allowance Trading Programs	$15,667.4	$21,814.9	$22,857.5	$1,042.6
Congressionally Mandated Projects	$12,724.8	$0.0	$0.0	$0.0
Federal Stationary Source Regulations	$19,120.1	$23,702.2	$24,302.0	$599.8
Federal Support for Air Quality Management	$92,966.1	$96,657.4	$102,849.9	$6,192.5
Federal Support for Air Toxics Program	$28,116.6	$28,655.1	$27,358.7	($1,296.4)
Federal Vehicle and Fuels Standards and Certification	$55,525.5	$60,446.8	$64,466.5	$4,019.7
International Capacity Building	$3,570.0	$1,541.3	$1,633.9	$92.6
Homeland Security: Critical Infrastructure Protection	$0.0	$1,106.2	$1,110.8	$4.6
Administrative Projects	$87,049.5	$103,800.3	$110,569.9	$6,769.7
TOTAL	**$557,907.1**	**$579,059.2**	**$659,876.2**	**$80,817.1**

ANNUAL PERFORMANCE GOALS AND MEASURES

Reduce Air Toxic Emissions

In 2005 Air toxics emissions nationwide from stationary and mobile sources combined will be reduced by an additional 1% of the updated 1993 baseline of 6.0 million tons for a cumulative reduction of 38%.

In 2004 Air toxics emissions nationwide from stationary and mobile sources combined will be reduced by an additional 2% of the updated 1993 baseline of 6.0 million tons for a cumulative reduction of 37%.

In 2003 End-of-year- FY 2003 data will be available in late 2009 to verify that air toxics emissions nationwide from stationary and mobile sources combined will be reduced by an additional 1% of the updated 1993 baseline of 6.0 million tons for a cumulative reduction 35%.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Combined Stationary and Mobile Source Reductions in Air Toxics Emissions	Data Lag	2	1	Percent
Mobile Source Air Toxics Emissions Reduced		.71	.80	Million Tons
Stationary Source Air Toxics Emissions Reduced		1.59	1.59	Million Tons
Major Sources, Area and All Other Air Toxics Emissions Reduced		+.13	+.14	Million Tons

Baseline: In 1993, the last year before the MACT standards and mobile source regulations developed under the Clean Air Act began to be implemented, stationary and mobile sources are now estimated to have emitted 6.0 million tons of air toxics. (EPA's prior estimate was 4.3 million tons and was updated with improved inventory data.) Air toxics emission data are revised every three years to generate inventories for the National Toxics Inventory (NTI). In the intervening years between the update of the NTI, the model EMS-HAP (Emissions Modeling System for Hazardous Air Pollutants) is used to estimate and project annual emissions of air toxics. EMS-HAP projects emissions, by adjusting point, area and mobile emission data to account for growth and emission reductions resulting from emission reduction scenarios such as the implementation of the Maximum Achievable Control Technology (MACT) standards.

Reduce SO2 Emissions

In 2005 Keep annual emissions below level authorized by allowance holdings and make progress towards achieving the year 2010 SO2 emissions cap for utilities. Annual emissions reduction target is 6.9 million tons from the 1980 baseline.

In 2004 Maintain or increase annual SO2 emission reduction of approximately 5 million tons from the 1980 baseline. Keep annual emissions below level authorized by allowance holdings and make progress towards achievement of Year 2010 SO2 emissions cap for utilities.

In 2003 End of year 2003 data will be available in the last quarter of 2004 to verify that annual emissions reduction of approximately 5 million tons from utility sources were maintained or increased during 2003.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
SO2 Emissions	Data Lag	5,000,000	6,900,000	Tons Reduced

Baseline: The base of comparison for assessing progress on the annual performance goal is the 1980 emissions baseline. The 1980 SO2 emissions inventory totals 17.4 million tons for electric utility sources. This inventory was developed by National Acid Precipitation Assessment Program (NAPAP) and used as the basis for reductions in Title IV of the Clean Air Act Amendments. This data is also contained in EPA's National Air Pollutant Emissions Trends Report. Statutory SO2 emissions cap for year 2010 and later is at 8.95 million tons which is approximately 8.5 million tons below 1980 emissions level. "Allowable SO2 emission level" consists of allowance allocations granted to sources each year under several provisions of the Act and additional allowances carried over, or banked, from previous years.

Reduce NOx Emissions

In 2003 End of year 2003 data will be available in Summer 2004 to verify that the Agency has achieved the annual emission reduction goal.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
NOx Reductions	Data Lag			Tons Reduced

Baseline: Performance Baseline: The base of comparison for assessing progress on this annual performance goal is emissions that would have occurred in the absence of Title IV of the Clean Air Act Amendments.

Reduce Exposure to Unhealthy Ozone Levels - 1 Hour

In 2005 The number of people living in areas with monitored ambient ozone concentrations below the NAAQS for the 1-hour ozone standard will increase by 4% (relative to 2004) for a cumulative total of 53% (relative to 1992).

In 2004 The number of people living in areas with monitored ambient ozone concentrations below the NAAQS for the 1-hour ozone standard will increase by 4% (relative to 2003) for a cumulative total of 47% (relative to 1992).

In 2003 Maintained healthy air quality for approx. 161.5 million people living in monitored areas attaining the ozone std; certified that 5 areas of the remaining 54 nonattainment areas have attained the 1-hour NAAQS for ozone thus increasing the no. of people living in areas with healthy air by 5.8 million.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Cumulative Percent Increase in the Number of People who Live in Areas with Ambient 1-hour Ozone Concentrations Below the Level of the NAAQS as Compared to 1992	Data Lag	47	53	Percent
Cumulative Percent Increase in the	Data Lag	55	40	Percent

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Number of Areas with Ambient 1-hour Ozone Concentrations Below the Level of the NAAQS as Compared to 1992				
Total Number of People who Live in Areas Designated to Attainment of the Clean Air Standards for Ozone	161,485,900	167,300,000	174,562,000	People
Areas Designated to Attainment for the Ozone Standard	5	5	6	Areas
Additional People Living in Newly Designated Areas with Demonstrated Attainment of the Ozone Standard	5,800,000	5,800,000	7,276,790	People
VOCs Reduced from Mobile Sources	1,900,000	2,040,000	855,624	Tons
NOx Reduced from Mobile Sources	1,400,000	1,653,000	1,693,259	Tons

Baseline: The 1992 baseline for population is the population in areas not classified or designated as attainment for the clean air national ambient air quality standards. The 1992 baseline for areas is those areas that are designated as non-attainment of the NAAQs. Through FY 2003, 161,485,905 are living in areas designated to attainment; 51 areas are designated to attainment for this/these pollutants. The 2000 MOBILE 6 inventory is used as the baseline year for mobile source emissions as of FY 2005. The 2000 baseline for VOC emissions is 7.7 million tons; the baseline is 11.8 million tons. The 2000 MOBILE 6 inventory is used as the baseline year for mobile source emissions as of FY 2005. The 2000 baseline for VOC emissions is 7.7 million tons; the baseline is 11.8 million tons. Beginning in FY 2004, EPA changed the basis for evaluating progress for this measure to reflect actual measured levels of air quality. Previously, EPA had not defined an area as having clean air until the area was formally classified as having met health-based standards. The procedural requirements for classification may require a year or more to complete. The previous total population numbers were for 2000 - 33.4 million (m) 2001 – 382.m; 2002 – 41.7m; 2003 – 47.8m.

Reduce Exposure to Unhealthy PM Levels - PM-10

In 2005 The number of people living in areas with monitored ambient PM concentrations below the NAAQS for the PM-10 standard will increase by 1% (relative to 2004) for a cumulative total of 7% (relative to 1992).

In 2004 The number of people living in areas with monitored ambient PM concentrations below the NAAQS for the PM-10 standard will increase by 1% (relative to 2003) for a cumulative total of 6% (relative to 1992).

In 2003 Maintained healthy air quality for 120 million people living in monitored areas attaining the PM standards; increased by 252 thousand the number of people living in areas with healthy air quality that have newly attained the standard.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Cumulative Percent Increase in the Number of People who Live in Areas with Ambient PM-10 Concentrations Below the Level of the NAAQSas Compared to 1992	Data Lag	6	7	Percent

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Cumulative Percent Increase in the Number of Areas with Ambient PM-10 Concentrations Below the Level of the NAAQSas Compared to 1992	Data Lag	40	50	Percent
Total Number of People who Live in Areas Designated in Attainment with Clean Air Standards for PM	120,379,036	120,700,000	122,308,000	People
Areas Designated to Attainment for the PM-10 Standard	5	9	4	Areas
Additional People Living in Newly Designated Areas with Demonstrated Attainment of the PM Standard	252,387	380,000	1,549,648	People
PM-10 Reduced from Mobile Sources	25,000	18,000	62,161	Tons
PM-2.5 Reduced from Mobile Sources	18,000	13,500	61,217	Tons

Baseline: The 1992 baseline for population is the population in areas not classified or designated as attainment for the clean air national ambient air quality standards. The 1992 baseline for areas is those areas that are designated as non-attainment of the NAAQs. Through FY 2003, 120,379,036 are living in areas designated to attainment; 5 areas are designated to attainment for this/these pollutants. The 1995 baseline for PM-10 reduced from mobile sources is 880,000 tons. The 2000 MOBILE 6 inventory is used as the baseline for mobile source emissions as of FY 2005. The 2000 baseline for PM 2.5 from mobile sources is 500,000 tons; the 2000 baseline for PM 2.5 from mobile sources is 613,000 tons. Beginning in FY 2004, EPA changed the basis for evaluating progress fro this measure to reflect actual measured levels of air quality. Previously, EPA had not defined an area as having clean air until the area was formally classified as having met health-based standards. The procedural requirements for classification may require a year or more to complete. The previous total population numbers were for 2000 – 1.2 million (m) 2001 – 1.2m; 2002 – 3.4m; 2003 – 6.2m.

Reduce Exposure to Unhealthy CO, SO2, NO2, Lead

In 2005 The number of people living in areas with monitored ambient CO, NO2, SO2, or Pb concentrations below the NAAQS will increase by less than 1% (relative to 2004) for a cumulative total of 53% (relative to 1992).

In 2004 The number of people living in areas with monitored ambient CO, NO2, SO2, or Pb concentrations below the NAAQS will increase by 4% (relative to 2003) for a cumulative total of 53% (relative to 1992).

In 2003 Maintained healthy air quality for 53 million people living in monitored areas attaining the CO, SO2, NO2, and Lead standards; increased by .74 million the number of people living in areas with healthy air quality that have newly attained the standard.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Cumulative Percent Increase in the Number of People who Live in Areas with		53	53	Percent

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Ambient CO, SO2, NO2, or Pb Concentrations Below the Level of the NAAQS as Compared to 1992				
Cumulative Percent Increase in the Number of Areas with Ambient CO, SO2, NO2, or Pb Concentrations Below the Level of the NAAQS as Compared to 1992		87	77	Percent
Total Number of People Living in Areas Designated in Attainment with Clean Air Standards for CO, SO2, NO2, and Pb	167,860,905	174,000,000	174,222,000	People
Areas Designated to Attainment for the CO, SO2, NO2, and Pb Standards	5	19	8	Areas
Additional People Living in Newly Designated Areas with Demonstrated Attainment of the CO, SO2, NO2, and Pb Standards	435,309	6,150,000	209,991	People
CO Reduced from Mobile Sources		12,636,000	-841,971	Tons
Total Number of People Living in Areas with Demonstrated Attainment of the NO2 Standard		n/a	n/a	People

Baseline: The 1992 baseline for population is the population in areas not classified or designated as attainment for the clean air national ambient air quality standards. The 1992 baseline for areas is those areas that are designated as non-attainment of the NAAQs. Through FY 2003, 167,860,905 are living in areas designated to attainment; 108 areas are designated to attainment for this/these pollutants. The 1995 baseline for mobile source emissions for CO was 70,947,000 tons. For mobile sources, the 2000 MOBILE 6 inventory is used as the baseline for FY 2005; the 2000 baseline for CO emissions is 79 million tons. While on-road CO emissions continue to decrease, there is an overall increase in mobile source CO emissions due to a growth in nonroad CO. Beginning in FY 2004, EPA changed the basis for evaluating progress fro this measure to reflect actual measured levels of air quality. Previously, EPA had not defined an area as having clean air until the area was formally classified as having met health-based standards. The procedural requirements for classification may require a year or more to complete. The previous total population numbers were for 2000 – 27.7 million (m) 2001 – 36.3m; 2002 – 36.7m; 2003 – 53.7m.

Reduce Exposure to Unhealthy Ozone Levels - 8 Hour

In 2005 The number of people living in areas with monitored ambient ozone concentrations below the NAAQS for the 8-hour ozone standard will increase by 4% (relative to 2004) for a cumulative total of 7% (relative to 2001).

In 2004 The number of people living in areas with monitored ambient ozone concentrations below the NAAQS for the 8-hour standard will increase by 3% (relative to 2003) for a cumulative total of 3% (relative to 2001).

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Cumulative Percent Increase in the Number of People who Live in Areas with Ambient 8-hour Concentrations Below the Level of the NAAQS as Compared to 2001		<1	<1	Percent
Cumulative Percent Increase in the Number of Areas with Ambient 8-hour Ozone Concentrations Below the Level of the NAAQS as Compared to 2001		<1	<1	Percent

Baseline: EPA will designate the attainment status for areas in April 2004. With that data, we will have the population baseline as well as the number of areas that are not in attainment for the 8-hour ozone standard.

Reduce Exposure to Unhealthy PM Levels - PM- 2.5

In 2005 The number of people living in areas with monitored ambient PM concentrations below the NAAQS for the PM-2.5 standard will increase by 1% (relative to 2003) for a cumulative total of less than 1% (relative to 2001).

In 2004 The number of people living in areas with monitored ambient ozone concentrations below the NAAQS for the PM-2.5 standard will increase by 1% (relative to 2003) for a cumulative total of less than 1% (relative to 2001).

In 2003

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Cumulative Percent Increase in the Number of People who Live in Areas with Ambient PM-2.5 Concentrations Below the Level of the NAAQS as Compared to 2001		1	1	Percent
Percent Increase in the Number of Areas with Ambient PM-2.5 Concentrations Below the Level of the NAAQS as Compared to 2001		1	1	Percent

Baseline: EPA will designate the attainment status for areas in FY 2005. With that data, we will have the population baseline as well as the number of areas that are not in attainment for the PM-2.5 standard.

Increase Tribal Air Capacity

In 2004 Increase the number of tribes monitoring air quality for ozone and/or particulate matter from 42 to 45 and increase the percentage of tribes monitoring clean air for ozone from 64% to 67% and particulate matter from 71% to 72%.

In 2003 39 tribes monitored air quality for ozone and/or particulate matter; 66% of tribes monitored clean air for ozone and 68% monitored for particulate matter.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Percent of Tribes with Tribal Lands Monitoring for Ozone and/or Particulate Matter	39 tribes	13		Percent
Percent of Monitoring Tribes Monitoring Clean Air for Ozone	66	67		Percent
Percent of Monitoring Tribes Monitoring Clean Air for Particulate Matter	68	72		Percent
Number of Tribes Implementing Air Programs		30		Tribes

Baseline: There are 570 Federally recognized Tribes with 341 Tribes having Tribal lands (Alaska Native Villages (Tribes) number 229 entities but only one 'reservation"). During 2003, 39 Tribes conducted monitoring for ozone and/or particulate matter 15 Tribes monitored their airsheds for ozone (10 of which recorded clean air), and 37 Tribes monitored for particulate matter (25 of which recorded clean air). EPA will continue to work with the Tribes to increase the number and/or percentage of Tribes that monitor for clean air.

Acid Rain

In 2005 Reduce total annual average nitrogen deposition and ambient nitrate concentrations 5% from baseline.

In 2005 Reduce total annual average sulfur deposition and ambient sulfate concentrations 27% from baseline.

In 2004 Reduce total annual average nitrogen deposition and mean ambient nitrate concentrations 5% from baseline.

In 2004 Reduce total annual average sulfur deposition and mean ambient sulfate concentrations 25% from baseline.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**
Total Annual Average Sulfur Deposition and Ambient Sulfate concentrations reduced (percent from baseline)		25	27
Total Annual Average Nitrogen Deposition and Ambient Nitrate concentrations reduced (percent from baseline)		5	5

Baseline: Sulfur and nitrogen deposition contribute to acidification of lakes and streams, making them unable to support fish and other aquatic life. Reductions in both total sulfur and nitrogen deposition is critical to reducing the number of chronically acidic water bodies. Ambient sulfate and ambient nitrate ("acid rain particulate") contributes to unhealthy air and respiratory problems in humans, especially children and other sensitive populations. The baseline is established from monitored site levels based on consolidated map of 1989-1991 showing a three year of deposition levels produced from the CASTNet site (http://www.epa.gov/airmarkets/castnet/sites.html).

VERIFICATION AND VALIDATION OF PERFORMACE MEASURES

FY 2005 Performance Measure:

- **Combined Stationary and Mobile Source Reductions in Air Toxics Emissions**
- **Mobile Source Air Toxics Emissions Reduced**
- **Stationary Source Air Toxics Emissions Reduced**
- **All Other Air Toxics Emissions Reduced**

Performance Database: National Emissions Inventory (NEI) for Hazardous Air Pollutants (HAPs)

Data Source: The NEI for HAPs includes emissions from large and small industrial sources inventoried as point sources, smaller stationary area and other sources, such as fires inventoried as non-point sources, and mobile sources.

Prior to 1999 NEI for HAPs, there was the National Toxics Inventory (NTI). The baseline NTI (for base years 1990 - 1993) includes emissions information for 188 hazardous air pollutants from more than 900 stationary sources and from mobile sources. It is based on data collected during the development of Maximum Achievable Control Technology (MACT) standards, state and local data, Toxics Release Inventory (TRI) data, and emissions estimates using accepted emission inventory methodologies. The baseline NTI contains county level emissions data and cannot be used for modeling because it does not contain facility specific data.

The 1996 NTI and the 1999 NEI for HAPs contain stationary and mobile source estimates that are used as input to National Air Toxics Assessment (NATA) modeling. The 1996 NTI and 1999 NEI for HAPs contain estimates of facility-specific HAP emissions and their source specific parameters necessary for modeling such as location (latitude and longitude) and facility characteristics (stack height, exit velocity, temperature, etc.)

The primary sources of data in the 1996 and 1999 NTI are state and local air pollution control agencies and Tribes. These data vary in completeness, format, and quality. EPA evaluates these data and supplements them with data gathered while developing MACT and residual risk standards, industry data, and TRI data. To produce a complete model-ready national inventory, EPA estimates emissions for approximately 30 non-point source categories such as wildfires and residential heating sources not included in the state, local and Tribal data. Mobile source data are developed using data provided by state and local agencies and Tribes and the most current onroad and nonroad models developed by EPA's Office of Transportation and Air Quality. The draft 1996 NTI and 1999 NEI for HAPS underwent extensive review by state and local agencies, Tribes, industry, EPA, and the public.

For more information and references on the development of the 1996 NTI, please go to the following web site: www.epa.gov/ttn/chief/nti/index.html#nti. For more information and references on the development of the 1999 NEI for HAPs, please go to the following web site: www.epa.gov/ttn/chief/net/index.html#1999

Methods, Assumptions and Suitability: The EMS-HAP (Emissions Modeling System for Hazardous Air Pollutants) is used to estimate annual emissions of air toxics for the 1996 NTI and 1999 NEI for HAPS (and for all years in-between). EMS-HAP is an emissions processor that performs the steps needed to process an emission inventory for input into the NATA model. These steps include: spatial allocation of nonpoint stationary area and mobile source emissions from the county level to the census tract level, and temporal allocation of annual emission rates to annually averaged (i.e., same rate for every day of the year) 3-hour emission rates. In addition, EMS-HAP can project future emissions, by adjusting stationary source emission data to account for growth and emission reductions resulting from emission reduction scenarios such as the implementation of the Maximum Achievable Control Technology (MACT) standards.

For more information and references on EMS-HAP, please go to the following web sites:
http://www.epa.gov/scram001/tt22.htm#aspen and http://www.epa.gov/ttn/chief/emch/projection/emshap.html.
The growth and reduction information used for the projections are further described on the following website: http://www.epa.gov/ttn/chief/emch/projection/emshap.html

QA/QC Procedures: The NTI and the NEI for HAPs are databases designed to house information from other primary sources. The EPA performs extensive quality assurance/quality control (QA/QC) activities, including

checking data provided by other organizations, to improve the quality of the emission inventory. Some of these activities include: (1) the use of an automated format QC tool to identify potential errors of data integrity, code values, and range checks; (2) use of geographical information system (GIS) tools to verify facility locations; and (3) automated content analysis by pollutant, source category and facility to identify potential problems with emission estimates such as outliers, duplicate sites, duplicate emissions, coverage of a source category, etc. The content analysis includes a variety of comparative and statistical analyses. The comparative analyses help reviewers prioritize which source categories and pollutants to review in more detail based on comparisons using current inventory data and prior inventories. The statistical analyses help reviewers identify potential outliers by providing the minimum, maximum, average, standard deviation, and selected percentile values based on current data. The EPA is currently developing an automated QC content tool for data providers to use prior to submitting their data to EPA. After investigating errors identified using the automated QC format and GIS tools, the EPA follows specific guidance on augmenting data for missing data fields. This guidance is available at the following web site: http://www.epa.gov/ttn/chief/emch/invent/qaaugmementationmemo_99nei_60603.pdf

The NTI database contains data fields that indicate if a field has been augmented and identifies the augmentation method. After performing the content analysis, the EPA contacts data providers to reconcile potential errors. The draft NTI is posted for external review and includes a README file, with instructions on review of data and submission of revisions, state-by-state modeling files with all modeled data fields, and summary files to assist in the review of the data. One of the summary files includes a comparison of point source data submitted by different organizations. During the external review of the data, state and local agencies, Tribes, and industry provide external QA of the inventory. The EPA evaluates proposed revisions from external reviewers and prepares memos for individual reviewers documenting incorporation of revisions and explanations if revisions were not incorporated. All revisions are tracked in the database with the source of original data and sources of subsequent revision.

The external QA and the internal QC of the inventory have resulted in significant changes in the initial emission estimates, as seen by comparison of the initial draft NEI for HAPs and its final version. For more information on QA/QC of the NEI for HAPs, please refer to the following web site for a paper presented at the 2002 Emission Inventory Conference in Atlanta. “QA/QC - An Integral Step in the Development of the 1999 National Emission Inventory for HAPs”, Anne Pope, et al. www.epa.gov/ttn/chief/conference/ei11/qa/pope.pdf

EPA’s Office of Environmental Information (OEI) has created uniform data standards or elements, which provide “meta” information on the standard NEI Input Format (NIF) fields. These standards were developed by teams representing states, Tribes, EPA and other Federal agencies. The use of common data standards among partners fosters consistently defined and formatted data elements and sets of data values, and provides public access to more meaningful data. The standards relevant to the NEI for HAPs are the: SIC/NAICS, Latitude/Longitude, Chemical Identification, Facility Identification, Date, Tribal and Contact Data Standards. The 1999 NEI for HAPs is compliant with all new data standards except the Facility Identification Standard because OEI has not completed its assignment of Facility IDs to the 1999 NEI for HAPs facilities.

For more information on compliance of the NEI for HAPs with new OMB Information Quality Guidelines and new EPA data standards, please refer to the following web site for a paper presented at the 2003 Emission Inventory Conference in San Diego. “The Challenge of Meeting New EPA Data Standards and Information Quality Guidelines in the Development of the 2002 NEI Point Source Data for HAPs”, Anne Pope, et al.
www.epa.gov/ttn/chief/conference/ei12/dm/pope.pdf

The 2002 NEI for HAPs will undergo scientific peer review.

Data Quality Review: EPA staff, state and local agencies, Tribes, industry and the public review the NTI and the NEI for HAPs. To assist in the review of the 1999 NEI for HAPs, the EPA provided a comparison of data from the three data sources (MACT/residual risk data, TRI, and state, local and Tribal inventories) for each facility. For the 1999 NEI for HAPs, two periods were available for external review - October 2001 - February 2002 and October 2002 - March 2003.

Both the full draft 1996 National Air Toxics Assessment and several of the individual components of the assessment have been subjected to the scrutiny of leading scientists throughout the country in a process called "scientific peer review." This ensures that EPA uses the best available scientific methods and information. In 2001, EPA’s Science Advisory Board (SAB) reviewed the 1996 national-scale assessment. The review was generally supportive of the assessment purpose, methods, and presentation; the committee considers this an important step toward a better

understanding of air toxics. Many of the SAB comments related to possible improvements for future assessments (additional national-scale assessments are being planned for the base year 1999 and for every 3 years thereafter) and raised technical issues that would merit further investigation. EPA will follow up on these issues. Additional information is available on the Internet: www.epa.gov/ttn/atw/nata/peer.html.

The following describes the various scientific peer review activities that are associated with the 1996 national air toxics assessment:

- EPA's Science Advisory Board peer-reviewed the ASPEN dispersion model used in the Cumulative Exposure Project (CEP). The Science Advisory Board issued their report in 1996. It can be found at http://www.epa.gov/sab/fiscal96.htm.

- The HAPEM exposure model underwent a peer review by EPA scientists and an external peer review in the summer of 2000. While the peer review identified several limitations inherent in the current methodology, it is still acknowledged as an appropriate tool to help better understand the relation of human exposures to ambient concentration levels.

Data Limitations: The NTI and the NEI for HAPs contain data from other primary references. Because of the different data sources, not all information in the NTI and the NEI for HAPs has been developed using identical methods. Also, for the same reason, there are likely some geographic areas with more detail and accuracy than others. Because of the lesser level of detail in the 1993 NTI, it is not suitable for input to dispersion models.

For a discussion of the data limitations in the 1999 NEI for HAPs, please refer to the discussion of Information Quality Guidelines in the documentation at:
www.epa.gov/ttn/chief/net/index.html#haps99 .

New/Improved Data or Systems: The 1996 NTI and 1999 NEI for HAPs are a significant improvement over the baseline 1993 NTI because of the added facility-level detail (e.g., stack heights, latitude/longitude locations), making it more useful for dispersion model input. Future inventories (2002 and later years) are expected to improve significantly because of increased interest in the NEI for HAPs by regulatory agencies, environmental interests, and industry, and the greater potential for modeling and trend analysis. During the development of the 1999 NEI for HAPs, all primary data submitters and reviewers were required to submit their data and revisions to EPA in a standardized format using the Agency's Central Data Exchange (CDX). For more information on CDX, please go the following web site: www.epa.gov/ttn/chief/nif/cdx.html

References: The NTI and NEI data and documentation are available at the following sites:

ftp site:	ftp://ftp.epa.gov/EmisInventory/
Available inventories:	1996 NTI, 1999 NEI for HAPs
Contents:	Modeling data files for each state
	Summary data files for nation
	Documentation
	README file
Audience:	individuals who want full access to NTI files

NEON:	http://ttnwww.rtpnc.epa.gov/Neon/
Available inventories:	1996 NTI and 1999 NEI for HAPs
Contents:	Summary data files
Audience:	EPA staff

CHIEF:	www.epa.gov/ttn/chief
	1999 NEI for HAPs data development materials
	1999 Data Incorporation Plan - describes how EPA compiled the 1999 NEI for HAPs
	QC tool for data submitters
	Data Augmentation Memo describes procedures EPA will use to augment data
	99 NTI Q's and A's provides answers to frequently asked questions

NIF (Input Format) files and descriptions
CDX Data Submittal Procedures - instructions on how to submit data using CDX
Training materials on development of HAP emission inventories
Emission factor documents, databases, and models

Audience: State and local agencies, Tribes, industry, EPA, and the public

FY 2005 Performance Measures:

- **SO_2 emissions reduced (tons/year from baseline)**
- **Total annual average sulfur deposition and mean ambient sulfate concentrations reduced (% from baseline)**
- **Total annual average nitrogen deposition and mean ambient nitrate concentrations reduced (% from baseline)**

Performance Databases:

- Emissions Tracking System (ETS) - SO_2 and NO_X emissions collected by Continuous Emission Monitoring Systems (CEMS) or equivalent continuous monitoring methods.
- Clean Air Status and Trends Network (CASTNet) - dry acid deposition; weekly average ambient concentrations of sulfate, nitrate, sulfur dioxide, nitric acid, ammonium; meteorological data required for calculating deposition rates.
- National Atmospheric Deposition Program (NADP) - wet acid (sulfur and nitrogen) deposition.

Data Sources: On a quarterly basis, ETS receives and processes hourly measurements of SO_2, NO_x, volumetric flow, CO_2, and other emission-related parameters from more than 2,500 fossil fuel-fired utility units affected under the Title IV Acid Rain Program. For the 5-month ozone season (May 1 - September 30), ETS receives and processes hourly NO_x measurements from electric generation units (EGUs) and certain large industrial combustion units affected by NO_x Budget Programs under the NO_x State Implementation Plan (SIP) Call. In 2004, the initial compliance year for the NO_x SIP Call, up to 2000 units in as many as 20 states and D.C. will be reporting seasonal NO_x data to ETS. Over 900 units have been reporting these data since 1999 under the OTC NO_x Budget Program.

CASTNet measures particle and gas acidic deposition chemistry. Specifically, CASTNet measures sulfate and nitrate dry deposition and meteorological information at approximately 70 monitoring sites, primarily in the East. CASTNet is a long-term dry deposition network funded, operated and maintained by EPA's Office of Air and Radiation (OAR).

NADP is a national long-term wet deposition network that measures precipitation chemistry and provides long-term geographic and temporal trends in concentration and deposition of precipitation components. Specifically, NADP provides measurements of sulfate and nitrate wet deposition at approximately 230 monitoring sites. EPA, along with several other Federal agencies, states, and other private organizations, provide funding and support for NADP. The Illinois State Water Survey/University of Illinois maintains the NADP database.

The deposition monitoring networks have been in operation for over 25 years. They provide invaluable measurements on long-term trends and episodes in acid deposition; such data are essential for assessing progress toward the program's intended environmental and welfare outcomes. These networks are aging and need to be modernized to ensure the continued availability of these direct environmental measures. Much of the equipment is beyond its useful life, replacement parts are difficult to procure, and the data processing is outmoded and expensive. To date, modernization of this network has not been considered a priority. Unless this situation changes, the Agency's ability to assess long-term performance measures will be compromised.

Methods, Assumption, and Suitability: Consistent, well-defined methods for data aggregation and monitor tests have been incorporated into program regulations (40 CFR Part 75 (Continuous Emissions Monitoring). Original final rule issued 58 FR 3701-3757 (Jan 11, 1993). Rule revisions to improve program issued 60 FR 26510 (May 17, 1995), 61 FR 59142 (Nov 20, 1996), 63 FR 57356, 573581 and 57499 (Oct 27, 1998), 64 FR 28564 (May 26, 1999), and 67 FR 40394 (June 12, 2002)).that were promulgated in notice and comment (public) rulemakings. These

methods are used to aggregate data across all affected utilities for each pollutant and related source operating parameters. They specify how to calculate the baseline and test for quality assurance.

QA/QC Procedures: QA/QC requirements in the program regulations require that a series of quality assurance tests are performed at least annually to assure valid CEMS performance. For these tests, emissions data are collected under highly structured, carefully designed testing conditions, which involve either high quality standard reference materials or multiple instruments performing simultaneous emission measurements. The resulting data are screened and analyzed using a battery of statistical procedures, including one that tests for systematic bias. If a CEM fails the bias test, indicating a potential for systematic underestimation of emissions, the source of the error must be identified and corrected or the data are adjusted to compensate for the measurement bias. Further information available on the Internet: http://www.epa.gov/airmarkets/reporting/index.html

CASTNet established a Quality Assurance Project Plan (QAPP) in November 2001; The QAPP contains data quality objectives and quality control procedures for accuracy and precision. {U.S. EPA, Office of Air Quality Planning and Standards, *Clean Air Status and Trends Network (CASTNet) Quality Assurance Project Plan* (Research Triangle Park, NC: U.S. EPA, November 2001). Available at http://www.epa.gov/castnet/library/qapp.html.

NADP has established data quality objectives and quality control procedures for accuracy, precision and representation, available on the Internet: http://nadp.sws.uiuc.edu/QA/. The intended use of these data is to establish spatial and temporal trends in wet deposition and precipitation chemistry.

Data Quality Review: The ETS provides instant feedback to sources on data reporting problems, format errors, and inconsistencies. The electronic data file QA checks are described at http://www.epa.gov/airmarkets/reporting/index.html (see *Electronic Data Report Review Process*, *ETS Tolerance Tables*, *Active ETS Error Codes/Messages* and *Range Format Errors*). All quarterly reports are analyzed to detect deficiencies and to identify reports that must be resubmitted to correct problems. EPA also identifies reports that were not submitted by the appropriate reporting deadline. Revised quarterly reports, with corrected deficiencies found during the data review process, must be obtained from sources by a specified deadline. All data are reviewed, and preliminary and final emissions data reports are prepared for public release and compliance determination.

CASTNet underwent formal peer review in 1997 by a panel of scientists from EPA and the National Oceanographic Atmospheric Administration (NOAA). Findings are documented in *Examination of CASTNet: Data, Results, Costs, and Implications* (United States EPA, Office of Research and Development, National Exposure Research Laboratory, February 1997).

The NADP methods of determining wet deposition values have undergone extensive peer review, handled entirely by the NADP housed at the Illinois State Water Survey/University of Illinois. Assessments of changes in NADP methods are developed primarily through the academic community and reviewed through the technical literature process.

Data Limitations: In order to improve the spatial resolution of CASTNet, additional monitoring sites are needed. CASTNet has no geographic coverage for the middle of the country and very limited coverage in the Northwest.

Error Estimate: None

New/Improved Data or Systems: EPA is investigating ways to modernize aging CASTNet equipment; streamline site operation, data collection and processing methods; reduce system operating costs; and provide a foundation for mutipollutant measurement compatible with other networks.

References: For additional information about CASTNet, see http://www.epa.gov/castnet/ and for NADP, see http://nadp.sws.uiuc.edu/. For a description of EPA's Acid Rain program, see http://www.epa.gov/airmarkets/arp/index.html/ and in the electronic Code of Federal Regulations at http://www.epa.gov/docs/epacfr40/chapt-I.info/subch-C.htm (40 CFR parts 72-78.)

FY 2005 Performance Measures:

- **Cumulative percent increase in the number of people who live in areas with ambient criteria pollutant concentrations below the level of the NAAQS.**
- **Cumulative percent increase in the number of areas with ambient criteria pollutant concentrations below the level of the NAAQS.**
- **Areas designated to attainment for the NAAQS.**

Performance Databases:
AQS —The Air Quality Subsystem (AQS) stores ambient air quality data used to evaluate an area's air quality levels relative to the NAAQS.

FREDS—The Findings and Required Elements Data System is used to track progress of states and Regions in reviewing and approving the required data elements of the State Implementation Plans (SIP). SIPs are clean air plans and define what actions a state will take to improve the air quality in areas that do not meet national ambient air quality standards

Data Sources:
AQS: State & local agency data from State and Local Air Monitoring Stations (SLAMS).

Population: Data from Census-Bureau/Department of Commerce

FREDS: Data are provided by EPA's Regional offices.

Methods, Assumptions, and Suitability: Air quality levels are evaluated relative to the level of the appropriate NAAQS. Next the populations in areas with air quality concentrations above the level of the NAAQS are aggregated. This analysis assumes that the populations of the areas are held constant at 2000 Census levels. Data comparisons over several years allow assessment of the air program's success.

QA/QC Procedures: AQS: The QA/QC of the national air monitoring program has several major components: the Data Quality Objective (DQO) process, reference and equivalent methods program, EPA's National Performance Audit Program (NPAP), system audits, and network reviews (Available on the Internet: www.epa.gov/ttn/amtic/npaplist.html) To ensure quality data, the SLAMS are required to meet the following: 1) each site must meet network design and site criteria; 2) each site must provide adequate QA assessment, control, and corrective action functions according to minimum program requirements; 3) all sampling methods and equipment must meet EPA reference or equivalent requirements; 4) acceptable data validation and record keeping procedures must be followed; and 5) data from SLAMS must be summarized and reported annually to EPA. Finally, there are system audits that regularly review the overall air quality data collection activity for any needed changes or corrections. Further information available on the Internet: http://www.epa.gov/cludygxb/programs/namslam.html and through United States EPA's Quality Assurance Handbook (EPA-454/R-98-004 Section 15)

Populations: No additional QA/QC beyond that done by the Census Bureau/Department of Commerce.

FREDS: No formal QA/QC procedures.

Data Quality Review:
AQS: No external audits have been done in the last 3 years. However, internal audits are regularly conducted.

Populations: No additional QA/QC beyond that done by the Census Bureau/Department of Commerce.

FREDS: None

Data Limitations:
AQS: None known

Populations: No additional QA/QC beyond that done by the Census Bureau/Department of Commerce.

FREDS: None known

Error Estimate: At this time it is not possible to develop an error estimate. Uncertainty in projections (from modeling) and near term variations in air quality (due to meteorological conditions for example) exist.

New/Improved Data or Systems:
AQS: In January 2002, EPA completed the reengineering of AQS to make it a more user friendly, Windows-based system. As a result, air quality data will be more easily accessible via the Internet. AQS has also been enhanced to comply with the Agency's data standards (*e.g.*, latitude/longitude, chemical nomenclature). Beginning in July 2003, agencies submitted air quality data to AQS thru the Agency's Central Data Exchange (CDX). CDX is intended to be the portal through which all environmental data coming to or leaving the Agency will pass.

Population: None

FREDS: None

References: For additional information about criteria pollutant data, non-attainment areas, and other related information, see: http://www.epa.gov/airtrends/.

FY 2005 Performance Measures:

- **Estimated Mobile Source VOC Emissions**
- **Estimated Mobile Source NOx Emissions**
- **Estimated Mobile Source PM 10 Emissions**
- **Estimated Mobile Source PM 2.5 Emissions**
- **Estimated Mobile Source CO Emissions**

Performance Database: National Emissions Inventory Database. See: http://www.epa.gov/ttn/chief/trends/

Data Source: Mobile source emissions inventories. Estimates for on-road, off-road mobile source emissions are built from inventories fed into the relevant models, which in turn provide input to the National Emissions Inventory Database.

The MOBILE vehicle emission factor model is a software tool for predicting gram per mile emissions of hydrocarbons, carbon monoxide, oxides of nitrogen, carbon dioxide, particulate matter, and toxics from cars, trucks, and motorcycles under various conditions.

The NONROAD emission inventory model is a software tool for predicting emissions of hydrocarbons, carbon monoxide, oxides of nitrogen, particulate matter, and sulfur dioxides from small and large off road vehicles, equipment, and engines.
Certain mobile source information is updated annually. Inputs are updated annually only if there is a rationale and readily available source of annual data. Generally, Vehicle Miles Traveled (VMT), the mix of VMT by type of vehicle (Federal Highway Administration (FHWA)-types), temperature, gasoline properties, and the designs of Inspection/Maintenance (I/M) programs are updated each year. Emission factors for all mobile sources and activity estimates for non-road sources are changed only when the Office of Transportation and Air Quality requests that this be done and is able to provide the new information in a timely manner. The most recent models for mobile sources are Mobile 6 and Nonroad 2002. (Available on the Internet at http://www.epa.gov/otaq/models.htm.)

Methods, Assumptions, and Suitability: EPA issues emissions standards that set limits on how much pollution can be emitted from a given mobile source. Mobile sources include vehicles that operate on roads and highways ("on road" or "highway" vehicles), as well as nonroad vehicles, engines, and equipment. Examples of mobile sources are cars, trucks, buses, earthmoving equipment, lawn and garden power tools, ships, railroad locomotives, and airplanes. Vehicle and equipment manufacturers have responded to many mobile source emission standards by redesigning vehicles and engines to reduce pollution.

EPA uses models to estimate mobile source emissions, for both past and future years. The estimates are used in a variety of different settings, like rulemaking.

The most complete and systematic process for making and recording such mobile source emissions estimates is the "Trends" inventory process executed each year by the Office of Air Quality Planning and Standards' (OAQPS) Emissions, Monitoring, and Analysis Division (EMAD). The Assessment and Modeling Division, within the Office of Transportation and Air Quality, provides EMAD information and methods for making the mobile source estimates. In addition, EMAD's contractors obtain necessary information directly from other sources; for example, weather data and the Federal Highway Administration's (FHWA) Vehicle Miles Traveled (VMT) estimates by state. EMAD creates and publishes the emission inventory estimate for the most recent historical year, detailed down to the county level and with over 30 line items representing mobile sources. At irregular intervals as required for regulatory analysis projects, EMAD creates estimates of emissions for future years. When the method for estimating emissions changes significantly, EMAD usually revises its older estimates of emissions in years prior to the most recent year, to avoid a sudden discontinuity in the apparent emissions trend. EMAD publishes the national emission estimates in hardcopy; county-level estimates are available electronically. Additional information about transportation and air quality related to estimating, testing for, and measuring emissions, as well as research being conducted on technologies for reducing emissions is available at http://www.epa.gov/otaq/research.htm

QA/QC Procedures: The emissions inventories are continuously improved.

Data Quality Review: The emissions inventories are reviewed by both internal and external parties.

Data Limitations: The limitations of the inventory estimates for mobile sources come from limitations in the modeled emission factors (based on emission factor testing and models predicting overall fleet emission factors in g/mile) and also in the estimated vehicle miles traveled for each vehicle class (derived from Department of Transportation data).http://www.epa.gov/otaq/m6.htm. For nonroad emissions, the estimates come from a model using equipment populations, emission factors per hour or unit of work, and an estimate of usage. This nonroad emissions model accounts for over 200 types of nonroad equipment. Any limitations in the input data will carry over into limitations in the emission inventory estimates.

Error Estimate: Additional information about data integrity is available on the Internet: http://www.epa.gov/otaq/m6.htm.

New/Improved Data or Systems: To keep pace with new analysis needs, new modeling approaches, and new data, EPA is currently working on a new modeling system termed the Multi-scale Motor Vehicles and Equipment Emission System (MOVES). This new system will estimate emissions for on road and off road sources, cover a broad range of pollutants, and allow multiple scale analysis, from fine scale analysis to national inventory estimation. When fully implemented, MOVES will serve as the replacement for MOBILE6 and NONROAD. The new system will not necessarily be a single piece of software, but instead will encompass the necessary tools, algorithms, underlying data and guidance necessary for use in all official analyses associated with regulatory development, compliance with statutory requirements, and national/regional inventory projections. Additional information is available on the Internet: http://www.epa.gov/otaq/ngm.htm

References: For additional information about mobile source programs see: http://www.epa.gov/otaq/.

STATUTORY AUTHORITIES

Alternative Motor Fuels Act of 1988
Clean Air Act (42 U.S.C. 7401-7671g)
Motor Vehicle Information and Cost Savings Act
National Environmental Policy Act (NEPA)
National Highway System Designation Act

OBJECTIVE: Healthier Indoor Air

By 2008, 22.6 million more Americans than in 1994 will be experiencing healthier indoor air in homes, schools, and office buildings.

Resource Summary
(Dollars in Thousands)

	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	FY 2005 Req. v. FY 2004 Pres Bud
Healthier Indoor Air	**$44,299.1**	**$48,042.5**	**$48,954.7**	**$912.1**
Environmental Program & Management	$32,649.2	$37,916.4	$38,695.1	$778.6
Science & Technology	$1,611.8	$1,289.0	$1,367.3	$78.3
State and Tribal Assistance Grants	$9,415.3	$8,150	$8,150	$0
Buildings & Facilities	$417.0	$414.6	$465.0	$50.4
Inspector General	$205.8	$272.5	$277.3	$4.8
Total Workyears	152.0	149.9	153.2	3.4

Program Project
(Dollars in Thousands)

	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	FY 2005 Req. v. FY 2004 Pres Bud
Categorical Grant: Radon	$9,415.3	$8,150.0	$8,150.0	$0.0
Indoor Air: Asthma Program	$9,062.6	$11,097.0	$11,197.3	$100.3
Indoor Air: Environment Tobacco Smoke Program	$2,832.8	$3,617.5	$3,695.1	$77.6
Indoor Air: Radon Program	$5,843.6	$5,871.1	$6,065.6	$194.5
Indoor Air: Schools and Workplace Program	$9,005.2	$11,176.2	$11,258.2	$82.0
Administrative Projects	$8,139.6	$8,130.7	$8,588.5	$457.7
TOTAL	**$44,299.1**	**$48,042.5**	**$48,954.7**	**$912.1**

ANNUAL PERFORMANCE GOALS AND MEASURES

Healthier Residential Indoor Air

In 2005 843,300 additional people will be living in homes with healthier indoor air.

In 2004 834,400 additional people will be living in healthier residential indoor environments.

In 2003 End-of-year FY 2003 data will be available in late 2004 to verify that 834,400 additional people were living in healthier residential indoor environments.

Performance Measures:	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	
People Living in Healthier Indoor Air	Data Lag	834,400	843300	People

Baseline: 1. By 2005, increase the number of people living in homes built with radon reducing features to 4,539,000 from 1,862,280 in 1994 (cumulative) .* 2. By 2005, decrease the number of children exposed to ETS from 27,502,000 in 1994 to 24,119,404 (cumulative) .** 3. By 2005, increase by 500,000 the number of people with asthma and their caregivers who are educated about indoor air asthma triggers. * The 1994 baseline for the number of new homes built with radon-resistant design features has changed from 684,000 t0 384,000. This is due to a recent review of historical NAHB Research Center reports wehich determined that a significant number of "rough-in" installations were reported as radon-resistant new construction. "Rough-in" installations are not complete radon-reduction systems and do not provide any risk reduction, and they should not be considered when estimating the number of homes built with radon-resistant new construction. In order to improve the integrity of the results that are being reported, EPA is dropping homes with rough-in installations when estimating the amount of homes built with radon-resistant construction. The baseline of existing homes mitigated remains the same at 300,000 in 1994.

** The 1995 Census Report that EPA was using for a baseline population (19,500,000) for children 0 to 6 years of age represented only childeren 0 to 4 years of age. This recently came to our attention after an internal review of the baselines. The actual baseline population of children from the ages of 0 to 6 should be 27,502,168. In order to improve the integrity of the results that are being reported, EPA is correcting the baseline population to the comprehensive number which includes the ages 0 to 6 years old. Our 2005 goal of decreasing the percentage of childern exposed, remains at 15% and the starting point remains at 27.3%.

Healthier Indoor Air in Schools

In 2005 1,312,500 students, faculty and staff will experience improved indoor air quality in their schools.

In 2004 1,575,000 students, faculty and staff will experience improved indoor air quality in their schools.

In 2003 End-of-year FY 2003 data will be available in late 2004 to verify that 1,050,000 students, faculty and staff experienced improved indoor air quality in their schools.

Performance Measures:	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	
Students/Staff Experiencing Improved IAQ in Schools	Data Lag	1,575,000	1312500	Students/Staff

Baseline: The nation has approximately 117,000* schools with an average of 525 students, faculty and staff occupying them for a total baseline population of 61,425,000. The IAQ "Tools for Schools" Guidance implementation began in 1997. For FY 2004, the program projects an additional 3,000 schools will implement the guidance and seeks to obtain implementation commitments from 15 of the 100 largest school districts in the U.S. with an average of 140,000 per district. (Additional, not cumulative since there is not an established baseline for good IAQ practices in schools.)

* According to the U.S. Department of Education National Center for Education Statistics, between 1994 and 2002, 7,000 new schools were built. For the revised strategic plan we increased our baseline to incorporate the increase. Our FY 2008 strategic goal incorporates the additional school.

Healthier Indoor Air in Workplaces

In 2005 150,000 additional office workers will experience improved air quality in their workplaces.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
150,000 additional office workers will experience improved air quality in their workplaces.			150,000	People

Baseline: There are approximately 750,000 office buildings with 12 billion square feet. The mean worker density is 1 office worker per 500 square feet. Therefore, a total of 24 million office workers work in office buildings. Our 2005 goal is to get 5% of all office buildings to adopt good IAQ measures which translates into 1.2 million office workers (cumulative from 1994). Our 2008 goal is to get an additional 3% of all office buildings to adopt good IAQ measures which translates to 720,000 office workers (cumulative at 240,000 per year).

VERIFICATION AND VALIDATION OF PERFORMANCE MEASURES

FY 2005 Overarching Performance Measure: People Living in Healthier Indoor Air

FY 2005 Performance Measure: People Living in Radon Resistant Homes

Performance Database: Survey

Data Source: The survey is an annual sample of home builders in the United States most of whom are members of the National Association of Home Builders (NAHB). NAHB members construct 80% of the homes built in the United States each year. Using a survey methodology reviewed by EPA, NAHB Research Center estimates the percentage of these homes that are built radon resistant. The percentage built radon resistant from the sample is then used to estimate what percent of all homes built nationwide are radon resistant**.** To calculate the number of people living in radon resistant homes, EPA assumes an average of 2.67 people per household. NAHB Research Center has been conducting this annual builder practices survey for over a decade, and has developed substantial expertise in the survey's design, implementation, and analysis. The statistical estimates are typically reported with a 95 percent confidence interval.

Methods, Assumptions, and Suitability: NAHB Research Center conducts an annual survey of home builders in the United States to assess a wide range of builder practices. NAHB Research Center voluntarily conducts this survey to maintain an awareness of industry trends in order to improve American housing and to be responsive to the needs of the home building industry. The annual survey gathers information such as types of houses built, lot sizes, foundation designs, types of lumber used, types of doors and windows used, etc. The NAHB Research Center Builder Survey also gathers information on the use of radon-resistant design features in new houses, and these questions comprise about two percent of the survey questionnaire.

In January of each year, the survey of building practices for the preceding calendar year is typically mailed out to home builders. For the most-recently completed survey, for building practices during calendar year 2001, NAHB Research Center reported mailing the survey to about 44,000 active United States home building companies, and received about 2,800 responses which translates to a response rate of about 6.4 percent. This is the response rate for the entire survey. The survey responses are analyzed with respect to State market areas and Census Divisions in the United States, and are analyzed to assess the percentage and number of homes built each year that incorporate radon-reducing features. The data are also used to assess the percentage and number of homes built with radon-reducing features in high radon potential areas in the United States (high risk areas). Other analyses include radon-reducing features as a function of housing type, foundation type, and different techniques for radon-resistant new home construction. The data are suitable for year-to-year comparisons.

QA/QC Procedures: Because data are obtained from an external organization, QA/QC procedures are not entirely known. According to NAHB Research Center, QA/QC procedures have been established, which includes QA/QC by the vendor that is utilized for key entry of data.

Data Quality Review: Because data are obtained from an external organization, Data Quality Review procedures are not entirely known. NAHB Research Center indicates that each survey is manually reviewed, a process that requires several months to complete. The review includes data quality checks to ensure that the respondents understood the survey questions and answered the questions appropriately. NAHB Research Center also applies checks for open-ended questions to verify the appropriateness of the answers. In some cases, where open-ended questions request numerical information, the data are capped between the upper and lower three percent of the values provided in the survey responses. Also, a quality review of each year's draft report from NAHB Research Center is conducted by the EPA project officer.

Data Limitations: The majority of home builders surveyed are NAHB members. The NAHB Research Center survey also attempts to capture the activities of builders that are not members of NAHB. Home builders that are not members of NAHB are typically smaller, sporadic builders that in some cases build homes as a secondary profession. To augment the list of NAHB members in the survey sample, NAHB Research Center sends the survey to home builders identified from mailing lists of builder trade publications, such as Professional Builder magazine. There is some uncertainty as to whether the survey adequately characterizes the practices of builders who are not members of NAHB. The effects on the findings are not known.

Although an overall response rate of 6.4 percent could be considered low, it is the response rate for the entire survey, of which the radon-resistant new construction questions are only a very small portion. Builders responding to the survey would not be doing so principally due to their radon activities. Thus, a low response rate does not necessarily indicate a strong potential for a positive bias under the speculation that builders using radon-resistant construction would be more likely to respond to the survey. NAHB Research Center also makes efforts to reduce the potential for positive bias in the way the radon-related survey questions are presented.

Error Estimate: See Data Limitations

New/Improved Data or Systems: None

References: The results are published by the NAHB Research Center in annual reports of radon-resistant home building practices; see http://www.nahbrc.org/. The most recent report, "Builder Practices Report: Radon Reducing Features in New Construction 2001," Annual Builder and Consumer Practices Surveys by the NAHB Research Center, Inc., January 2, 2003. Similar report titles exist for prior years.

FY 2005 Performance Measure: People Living in Radon Mitigated Homes

Performance Database: External

Data Source: Radon fan manufacturers report fan sales to the Agency. EPA assumes one fan per radon mitigated home and then multiplies it by the assumed average of 2.67 people per household.

Methods, Assumptions and Suitability: N/A.

QA/QC Procedures: Because data are obtained from fan manufacturers, EPA relies on the business practices for reporting data.

Data Quality Review: Data are obtained from fan manufacturers. EPA reviews the data to ascertain their reliability and discusses any irregularities with the relevant manufacturer.

Data Limitations: Reporting by radon fan manufacturers is voluntary and may underestimate the number of radon fans sold. Nevertheless, these are the best available data to determine the number of homes mitigated. There are other methods to mitigate radon including: passive mitigation techniques of sealing holes and cracks in floors and foundation walls, installing sealed covers over sump pits, installing one-way drain valves in untrapped drains, and installing static venting and ground covers in areas like crawl spaces. Because there are no data on the occurrence of these methods, there is again the possibility that the number of radon mitigated homes has been underestimated.
No radon vent fan manufacturer, vent fan motor maker or distributor is required to report to EPA; they provide data/information voluntarily to EPA. There are only four (4) radon vent fan manufacturers of any significance; one of these accounts for an estimated 70% of the market.

Error Estimate: N/A.

New/Improved Data or Systems: None

References: See http://www.epa.gov/iaq/radon/pubs/index.html for National performance/progress reporting (National Radon Results: 1985-1999) on radon, measurement, mitigation and radon-resistant new construction.

FY 2005 Performance Measure: Number of people with asthma who have taken steps to reduce their exposure to indoor environmental asthma triggers.

Performance Database: The performance database consists of quarterly Partner status reports used to document the outcomes of individual projects; a media tracking study used to assess behavior change within that sector of the public viewing the public service announcements; and a national telephone survey (*National Survey on Environmental Management of Asthma*) which seeks information about the steps taken by people with asthma, and parents of children with asthma, to minimize exposure to indoor environmental asthma triggers. Additional information about asthma morbidity and mortality in the US is obtained from the Centers for Disease Control and Prevention (CDC). Annual expenditures for health and lost productivity due to asthma are obtained from the National Heart Lung and Blood Institute (NHLBI) Chartbook.

Data Source: Each component of the database has a unique source. Partner status reports are generated by those organizations receiving funding from EPA and are maintained by individual EPA Project Officers. An independent initiative of the Advertising Council provides media tracking of outcomes of all of their public service campaigns and this is publicly available information. The *National Survey on Environmental Management of Asthma* (OMB control number 2060-0490) source is EPA. Data on asthma morbidity and mortality is available from the National Center for Health Statistics at the CDC (www.cdc.gov/nchs). Data on annual expenditures for health and lost productivity due to asthma are obtained from the NHLBI Chartbook (www.nhlbi.nih.gov/resources/docs/02_chtbk.pdf).

Methods, Assumptions and Suitability:
Partner status reports: EPA requires all funded organizations to provide quarterly reports identifying the numbers of children, adults, and health care professionals educated about indoor asthma triggers, the numbers of homes, schools, and child care centers in which triggers have been identified, and the type of mitigation actions taken in these environments. In addition, decreases in the number of emergency room visits, hospitalizations, and other markers of asthma morbidity are requested from those partner organizations with access to such data. EPA believes that the information reflects progress made at achieving performance measures.

National Survey on Environmental Management of Asthma: (OMB control number 2060-0490): This survey is the most robust data set for this performance measure, but it is not administered annually. EPA has designed a survey instrument (telephonic survey) in consultation with staff from EPA and the CDC National Center for Health Statistics (NCHS) to ensure that respondents will understand the questions asked and will provide the type of data

necessary to measure the Agency's objectives. In addition, care has been taken to ensure that the survey questions target the population with asthma by using the same qualifier question that appears on other national surveys on asthma collected by the CDC.

EPA estimates that of the 26,600 households which make up the sampling frame, 60 percent, or approximately 16,000, will be contacted successfully and will agree to participate in the screening survey. Of these approximately 16,000 individuals, EPA expects that 15 percent, or approximately 2,400 individuals, will either have asthma or live with someone who does. Only those individuals who have asthma or live with someone who does are considered to be eligible respondents.

Respondents are asked to provide primarily yes/no responses. In some cases, respondents are given a range of responses in the form of multiple choice questions and are asked to indicate the one which best defines their response. The survey seeks information on those environmental management measures that the Agency considers important in reducing an individual's exposure to known indoor environmental asthma triggers. By using yes/no and multiple choice questions, the Agency has substantially reduced the amount of time necessary for the respondent to complete the survey and has ensured consistency in data response and interpretation.

The information collected may be used to establish a baseline to accurately reflect the characteristics of our nation's asthma population and by which to evaluate progress made at achieving performance measures.

QA/QC Procedures: It is assumed that partner organizations report data as accurately and completely as possible; site-visits are conducted by EPA project officers as warranted. The National Survey is designed in accordance with approved Agency procedures. Additional information is available on the Internet: http://www.epa.gov/icr/players.html.

Data Quality Review: EPA reviews the data from all sources in the performance database to ascertain reliability and resolves any discrepancies.

Data Limitations: The primary limitation associated with Partner organization status reporting is that limitation inherent to self-reporting. For the National Survey, random digit dialing methodology is used to ensure that a representative sample of households has been contacted; however, the survey is subject to inherent limitations of voluntary telephone surveys of representative samples. Limitations of phone surveys include: 1) inconsistency of interviewers following survey directions (i.e., an interviewer might: ask the questions incorrectly or inadvertently lead the interviewee to a response); or 2) call at an inconvenient time. For example, the respondent might not want to be interrupted at the time of the call and may resent the intrusion of the phone call. The answers will reflect this attitude. In addition, a telephone survey is limited to those households with a telephone.

Error Estimate: The Agency expects to achieve results within the following percentage points of the true value at the 90 percent confidence level (survey instrument):

Adult Asthmatics	plus or minus 3.0%
Child Asthmatics	plus or minus 4.0%
Low Income Adult Asthmatics	plus or minus 6.5%

These precision rates are sufficient to characterize the extent to which the results measured by the survey accurately reflect the characteristics of our nation's asthmatic population.

New/Improved Data or Systems: Data from the *National Survey on Environmental Management of Asthma* (OMB control number 2060-0490) was collected from August 4-September 17, 2003 and represents the first data collection with this instrument.

References: National Center for Health Statistics, Centers for Disease Control and Prevention (www.cdc.gov/nchs)

NHLBI Chartbook (www.nhlbi.nih.gov/resources/docs/02_chtbk.pdf).

EPA Indoor Environments Division (www.epa.gov/iaq/).

Survey results will be available in early March 2004. Questions may be directed to the Indoor Environment Division.

FY 2005 Performance Measure: Number of Children under 6 not Exposed to Secondhand Smoke (ShS) in the Home.

Performance Databases: The performance database consists of Smoke-free Home Pledges that are tracked through a hotline and website and that are documented in a monthly pledge report generated by EPA staff; Cooperative Agreement Partner status reports used to document the outcomes of individual projects; a media tracking study used to assess behavior change within that sector of the public viewing ShS public service announcements; and a national telephone survey (*National Survey on Environmental Management of Asthma*) which includes a series of questions about whether respondents allow smoking in their home, and if so, whether young children are in the household. Expenditures for medical costs of childhood illness attributable to ShS were taken from an analysis of previous studies and reports on medical costs. Information about ShS in the US is obtained periodically from the Centers for Disease Control and Prevention (CDC) including the National Health Interview Survey (for use in benchmarking and national tobacco/ShS exposure data), the National Health and Nutrition Examination Survey (for use of cotinine data), and the Behavioral Risk Factor Surveillance Survey (for use of state tobacco/ShS exposure data).

Data Sources: Each component of the database has a unique source. Partner status reports are generated by those organizations receiving funding from EPA and are maintained by individual EPA Project Officers. As part of their Cooperative Agreement, Consumer Federation of America Foundation provides media tracking of outcomes of all of their public service campaigns and this is publicly available information. The *National Survey on Environmental Management of Asthma* (OMB control number 2060-0490) source is EPA. The medical costs associated with SHS were from *2002 Medical Costs of Childhood Illness Attributable to Environmental Tobacco Smoke: Total National Costs and Cost to Managed Care Organizations*, a report prepared by Abt Associates Inc., an EPA funded contractor. Additional references are the US Surgeon General's report on tobacco (which includes the 1986 seminal document on involuntary smoking and demographic profiles of smoking/ShS exposure in US), the National Cancer Institute's (NCI) *Tobacco Monograph Series* (the sum of current knowledge of clinical trials, clinical guidelines and the validation of EPA and California EPA risk assessments), the NCI funded *Tobacco Use Supplement* portion of the US Census Bureau's *Current Population Survey* (contains fundamental policy questions regarding tobacco/ShS including smoking in the home), and *Healthy People 2010* (which includes information on cotinine, ShS exposure and children).

Other related sources: National Health Interview Survey and National Health and Nutrition Examination Survey are part of the National Center for Health Statistics, Centers for Disease Control and Prevention (http://www.cdc.gov/nchs); Behavioral Risk Factor Surveillance Survey, Centers for Disease Control and Prevention (http://www.cdc.gov/brfss/index.htm).

This information contributes to the knowledge set that helps us to calculate end of year results.

Methods, Assumptions and Suitability: *Partner status reports:* EPA requires all funded organizations to provide status reports on their activities identifying, for example, number of presentations given, pledges signed, number of people trained (i.e. health officials, daycare providers), number of parents reached, and projected number of children no longer exposed as a result of their activities. EPA believes that the information reflects progress made at achieving performance objectives.

National Survey on Environmental Management of Asthma (OMB control number 2060-0490): This survey is the most robust data set for the FY 2005 performance measure, however it is not administered annually. EPA has designed a survey instrument (telephonic survey) in consultation with staff from EPA's Indoor Environments Division (IED), EPA's Regional offices, and the CDC National Center for Health Statistics (NCHS) to ensure that respondents will understand the questions asked and will provide the type of data necessary to measure the Agency's objectives.

EPA estimates that of the 26,600 households, which make up the sampling frame, 60 percent, or approximately 16,000, will be contacted successfully and will agree to participate in the screening survey. SHS information will be obtained from these individuals. The sample will be large enough to yield the number of responses necessary to achieve an estimated two percent precision rate at a 95 percent confidence level.

Respondents are asked to provide primarily yes/no responses. In some cases, respondents are given a range of responses in the form of multiple choice questions and are asked to indicate the one which best defines their response. By using yes/no and multiple-choice questions, the Agency has substantially reduced the amount of time necessary for the respondent to complete the survey and has ensured consistency in data response and interpretation. EPA believes that the information collected may be useful in establishing a benchmark, in addition to the1994 and 1998 National Health Interview Survey, for the number of children, ages 6 and under, who are exposed to ShS in the home.

QA/QC Procedures: It is assumed that partner organizations report data as accurately and completely as possible; site-visits are conducted by EPA project officers as warranted. The National Survey was designed in accordance with approved Agency procedures. Additional information is available on the Internet: http://www.epa.gov/icr/players.html.

Data Quality Review: EPA reviews the data from all sources in the performance database to ascertain reliability and resolves any discrepancies.

Data Limitations: The primary limitation associated with Cooperative Agreement Partner status reporting is that self-reporting has an inherent limitation. For the National Survey, random digit dialing methodology is used to ensure that a representative sample of households has been contacted; however, the survey is subject to inherent limitations in voluntary telephone surveys of representative samples. Limitations of phone surveys include: 1) possible inconsistency of interviewers following survey directions. For example, an interviewer might; ask the questions incorrectly or inadvertently lead the interviewee to a response; or 2) call at an inconvenient time. For example, the respondent might not want to be interrupted at the time of the call and may resent the intrusion of the phone call. The answers will reflect this attitude. In addition, a telephone survey is limited to those households with a telephone or households that speak English. Currently available cotinine survey data does not address 50% of the age specific portion of EPA's target population. It does not include birth to three years old, the portion of children most susceptible to the effects of ShS.

Error Estimate: EPA's survey has been designed to ensure that, at the 95 percent confidence level, its estimate of the number of children fewer than 6 not exposed to ShS in the house is within approximately two percentage points of the true value. EPA is confident that these precision rates are more than adequate.

New/Improved Data or Systems: Data from the *National Survey on Environmental Management of Asthma* (OMB control number 2060-0490) was collected from August 4-September 17, 2003 and represents the first data collection with this instrument. This survey utilized the exact questions on SHS from the 1994 and 1998 National Health Interview Survey and will continue to assist in evaluating progress made at achieving our goal. In the future, medical cost data could be collected from a possible expansion of CDC's Smoking Attributable Morbidity and Mortality Economic Costs (SAMMEC) software.

References: EPA Indoor Environments Division (www.epa.gov/iaq/) Survey results will be available in early March 2004. Questions may be directed to the Indoor Environments Division.

National Health Interview Survey and National Health and Nutrition Examination Survey are part of the National Center for Health Statistics, Centers for Disease Control and Prevention (http://www.cdc.gov/nchs)

Behavioral Risk Factor Surveillance Survey, Centers for Disease Control and Prevention (http://www.cdc.gov/brfss/index.htm),

US Surgeon General's report on tobacco (http://www.cdc.gov/tobacco/sgr/index.htm),
National Cancer Institute's (NCI) *Tobacco Monograph Series* (http://cancercontrol.cancer.gov/tcrb/monographs/),

NCI funded *Tobacco Use Supplement* portion of the US Census Bureau's *Current Population Survey* (http://riskfactor.cancer.gov/studies/tus-cps/),

Healthy People 2010 (http://www.healthypeople.gov/).

FY 2005 Performance Measure: Students, faculty and staff experiencing improved indoor air quality in their schools

Performance Database: The performance database consists of cooperative partner status reports, annual results reports from the regions, and tracking numbers of disseminated kits. A survey of a representative sample of schools was completed during 2002. The survey serves to verify the number of schools using indoor air quality management plans consistent with EPA's guidance.

Data Source: The sources for the database include cooperative partners, regional data, information from EPA's National Clearinghouse on numbers of kits disseminated, and the statistical sample of all public and private schools in the nation during the 1999 – 2000 school year. (United States Department of Education National Center for Education Statistics).

Methods, Assumptions and Suitability: Calculations for the number of people experiencing improved IAQ are based upon an estimated average of 525 students, staff and faculty per school (data are from the United States Department of Education National Center for Education Statistics). Estimates of the number of schools implementing IAQ management plans, consistent with EPA's guidance, are conservative, and based upon a small percentage of the number of kits distributed, and the number of schools implementing IAQ management plans reported by cooperative partners and regions. A total of 809 completed questionnaires were returned for a survey response rate of 40%. There was no evidence of systematic error or selection bias associated with the response rate. The survey helped determine the number of schools adopting and implementing good indoor air quality (IAQ) practices consistent with EPA's IAQ Tools for Schools (TfS) guidance.

The distribution of returned and targeted questionnaires was similar with respect to the stratification criteria of geographic region and public/private schools. Academic resource, demographic, and socioeconomic characteristics of schools that returned the survey were approximately equal to those of schools that did not return the questionnaire. IAQ management practices were independent of the amount of follow-up effort required to elicit return of a questionnaire. These findings indicate that the EPA can use the survey results to make national projections regarding IAQ practices in schools.

Survey results were evaluated against the IAQ Practice Index, a scoring system developed by weighting possible responses to questions regarding Integrated Pest Management (IPM) practices and ventilation rates. An IAQ Practice Index score of $\geq$70 was considered indicative of an adequate IAQ management plan.

QA/QC Procedures: A small sample of returned questionnaires was selected at random and the manual data transcription from the original paper copy to the electronic database was reviewed for completeness and accuracy. A total of 3,670 entries were cross-referenced between the database and the paper copy of the survey. A few minor typographical errors in results from the first page of the questionnaire were identified (e.g., a period missing in P.O. Box or letters inverted in a name). Otherwise, all responses to the actual survey questions were accurately entered into the database.

As a quality control procedure, a random sample of surveys was scored manually and the IAQ Management Practice Index was computed by hand. The scores and indices were compared to the corresponding values generated by the computerized scoring program. In total, 140 data points were checked. The results of all the surveys that were hand-scored matched the values from the computerized scoring. In addition, the *IAQ Practices in Schools Survey Analysis* procedures and report underwent technical review by a qualified party at Environmental Health and Engineering, Inc. (EH&E), EPA's contractor, not involved in the original analysis. Survey is designed in accordance with approved Agency procedures. Additional information is available on the Internet: http://www.epa.gov/icr/players.html

Data Quality Review: Entries were cross-referenced between the database and the paper copy of the survey to ensure completeness and quality of responses. See QA/QC procedures, above.

Data Limitations: The primary limitation associated with Cooperative Agreement Partner status reporting is that self-reporting has an inherent limitation. For the National Survey, random digit dialing methodology is used to ensure that a representative sample of households has been contacted; however, the survey is subject to inherent limitations in voluntary telephone surveys of representative samples. Limitations of phone surveys include: 1)

possible inconsistency of interviewers following survey directions. For example, an interviewer might; ask the questions incorrectly or inadvertently lead the interviewee to a response; or 2) call at an inconvenient time. For example, the respondent might not want to be interrupted at the time of the call and may resent the intrusion of the phone call. The answers will reflect this attitude. In addition, a telephone survey is limited to those households with a telephone or households that speak English.

Error Estimate: The sample size was selected to ensure that the survey response yields a statistically valid result with a +/- three percent margin of error at the 95th percent confidence level.

New/Improved Data or Systems: Prior to the survey, EPA tracked the number of schools receiving the Tools for Schools (TfS) guidance and estimated the population of the school to determine the number of students/staff experiencing improved indoor air quality. With this survey, EPA queried a statistically representative sample of schools, to estimate the number of schools that have actually adopted and implemented good IAQ management practices consistent with the TfS guidance.

References: See the United States Department of Education National Center for Education Statistics,http://nces.ed.gov/. See also Indoor Air Quality Tools for Schools Kit (402-K-95-001) at http://www.epa.gov/iaq/schools. There is no website specifically relating to the survey. Inquiries may be made directly to the EPA Office of Indoor Environments.

FY 2005 Performance Measure: Office Workers improved indoor air quality in their workplaces.

Performance Database: The performance database consists of two sources, requested copies of building indoor air quality guidance documents, (e.g. Building Air Quality, I-Beam, and related guidance Mold Remediation in Schools and Commercial Buildings) and training conducted through cooperative agreements or other government agencies (e.g., General Services Administration (GSA)) using EPA's documents. In addition, EPA conducted a voluntary, pilot survey of building owners and managers in 2001 to determine the use of indoor air quality (IAQ) management practices in U.S. office buildings.

Data Source: The survey was developed by EPA and distributed by Building Owners and Managers Association (BOMA). The survey's purpose and design received approval from the Office of Management and Budget. The survey is not administered on an annual basis.

Methods, Assumptions and Suitability: EPA developed a seven-page survey of multiple-choice questions that requested each building owner or manager to supply information regarding: the size and uses of a selected building; documentation of management practices employed in the building; how the heating, ventilating, and air-conditioning systems are managed; how pollution sources are addressed; housekeeping and pest management practices; remodeling and renovation activities; and responses to tenant complaints regarding IAQ. EPA's contractor developed a project database to facilitate entry, storage and reporting statistics obtained from the survey. Based upon random sampling of membership lists from BOMA, the International Facilities Managers Association (IFMA) and buildings managed by the General Services Administration (GSA), the contractor generated a sampling frame. The final sample size, (and survey recipient list) was 3,612 and we received 591 completed surveys. The survey results identified both strengths and weaknesses in building management practices in U.S. office buildings.

QA/QC Procedures: The survey was focus group tested and peer-reviewed by IAQ professionals to ensure that respondents would understand the questions and provide accurate responses. It was also designed by a statistician to ensure reliability of the data collected. Each survey mailed was assigned a unique identifier to facilitate the tracking of survey responses within the database. BOMA, EPA's cooperative partner, ensured accuracy and completeness of submitted surveys by reviewing each submission prior to data entry. A double-entry protocol for all data entry was implemented to ensure an accuracy rate of at least 99%; each survey form was entered into the database twice, after which a computer program identified any variances. Two-percent of the records were randomly checked to ensure that accuracy goals were met. BOMA was responsible for tracking survey responses, entering the survey responses into the database, maintaining the data in a secure environment and providing quality assurance/quality control of all survey activities.

After the quality assurance checks on the data were performed, EPA's contractor aggregated the data analyses. EPA and the contractor developed a method to score the responses for each item on the questionnaire and computed an index of IAQ management practices. The quality of the scoring program results was assured by random inspection and correction, if necessary. The IAQ indices were analyzed using analysis-of-variance techniques to identify covariates of IAQ practices that could be used in considering future program initiatives.

Data Quality Review: BOMA had responsibility for the accuracy of data entered into the database. Quality assurance safeguards were used in the data entry. BOMA, and EPA's contractor reviewed individual survey responses and data for accuracy during the aggregation and analyses activities.

Data Limitations: The primary limitation associated with basing estimates on requests for guidance documents and training is the unknown factor of how many of the requests result in actions resulting in improved indoor air quality. The survey provides a reference point on progress. The survey results are subject to the limitations inherent in survey sampling. The response rate of 14% for the survey was low due to the timing of the survey administration and subsequent events in September and October 2001.

Error Estimate: 4% precision at a 95% confidence level.

New/Improved Data or Systems: None

References: There is no website specifically relating to this survey. Inquiries may be made directly to EPA's Office of Air and Radiation, Indoor Environments Division.

STATUTORY AUTHORITIES

Clean Air Act Amendments of 1990 (CAA)
Indoor Radon Abatement Act (IRAA), Section 306
Radon Gas and Indoor Air Quality Research Act of Title IV of the Superfund Amendments and Re-authorization Act (SARA) of 1986
Toxic Substances Control Act (TSCA), section 6, Titles II, and Title III (15 U.S.C. 2605 and 2641-2671), and Section 10

OBJECTIVE: Protect the Ozone Layer

By 2010, through worldwide action, ozone concentrations in the stratosphere will have stopped declining and slowly begun the slow process of recovery, and the risk to human health from overexposure to ultraviolet (UV) radiation, particularly among susceptible subpopulations, such as children, will be reduced

Resource Summary
(Dollars in Thousands)

	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	FY 2005 Req. v. FY 2004 Pres Bud
Protect the Ozone Layer	**$18,145.2**	**$19,069.4**	**$21,813.7**	**$2,744.3**
Environmental Program & Management	$17,892.5	$18,802.0	$21,516.2	$2,714.2
Buildings & Facilities	$164.4	$152.8	$164.7	$11.9
Inspector General	$88.3	$114.6	$132.8	$18.2
Total Workyears	39.2	36.1	36.7	0.6

Program Project
(Dollars in Thousands)

	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	FY 2005 Req. v. FY 2004 Pres Bud
Stratospheric Ozone: Domestic Programs	$5,994.8	$5,786.6	$5,839.6	$53.0
Stratospheric Ozone: Multilateral Fund	$9,518.9	$11,000.0	$13,500.0	$2,500.0
Administrative Projects	$2,631.5	$2,282.8	$2,474.1	$191.3
TOTAL	**$18,145.2**	**$19,069.4**	**$21,813.7**	**$2,744.3**

ANNUAL PERFORMANCE GOALS AND MEASURES

Restrict Domestic Consumption of Class II HCFCs

In 2005 Restrict domestic consumption of class II HCFCs below 9,906 ODP-weighted metric tonnes (ODP MTs) and restrict domestic exempted production and import of newly produced class I CFCs and halons below 10,000 ODP MTs.

In 2004 Restrict domestic consumption of class II HCFCs below 9,906 ODP-weighted metric tonnes (ODP MTs) and restrict domestic exempted production and import of newly produced class I CFCs and halons below 10,000 ODP MTs.

In 2003 End of year FY 2003 data will be available in late 2004 to verify restriction of domestic consumption of class II HCFCs below 9,906 ODP-weighted metric tonnes (ODP MTs) and restriction of domestic exempted production and import of newly produced class I CFCs and halons below 10,000 ODP MTs.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Domestic Consumption of Class II HCFCs	Data Lag	<9,906	<9,906	ODP MTs
Domestic Exempted Production and Import of Newly Produced Class I CFC s and Halons	Data Lag	<10,000	<10,000	ODP MTs

Baseline: The base of comparison for assessing progress on the 2005 annual performance goal is the domestic consumption cap of class II HCFCs as set by the Parties to the Montreal Protocol. Each Ozone Depleting Substance (ODS) is weighted based on the damage it does to the stratospheric ozone - this is its ozone-depletion potential (ODP). Beginning on January 1, 1996, the cap was set at the sum of 2.8 percent of the domestic ODP-weighted consumption of CFCs in 1989 plus the ODP-weighted level of HCFCs in 1989. Consumption equals production plus import minus export.

VERIFICATION AND VALIDATION OF PERFORMANCE MEASURES

FY 2005 Performance Measure: Restrict Domestic Consumption of Class II HCFCs Restrict Domestic Exempted Production and Import of Newly Produced Class I CFCs and Halons

Performance Database: The Allowance Tracking System (ATS) database is maintained by the Global Programs Division (GPD). ATS is used to compile and analyze quarterly information on U.S. production, imports, exports, transformations, and allowance trades of ozone-depleting substances (ODS).

Data Source: Progress on restricting domestic exempted consumption of Class I CFCs and halons is tracked by monitoring industry reports of compliance with EPA's phaseout regulations. Data are provided by U.S. companies producing, importing, and exporting ODS. Monthly information on domestic production, imports, and exports from the International Trade Commission is maintained in the ATS. Corporate data are typically submitted as quarterly reports. Specific requirements as outlined in the Clean Air Act are available on the Internet at: http://www.epa.gov/oar/caa/caa603.txt

Methods, Assumptions and Suitability: Data are aggregated across all U.S. companies for each individual ODS to analyze U.S. total consumption and production.

QA/QC Procedures: Reporting and record-keeping requirements are published in 40 CFR Part 82, Subpart A, Sections 82.9 through 82.13. These sections of the Stratospheric Ozone Protection Rule specify the required data and accompanying documentation that companies must submit or maintain on-site to demonstrate their compliance with the regulation.

The ATS data are subject to a Quality Assurance Plan. In addition, the data are subject to an annual quality assurance review, coordinated by OAR staff separate from those on the team normally responsible for data collection and maintenance. The ATS is programmed to ensure consistency of the data elements reported by companies. The tracking system flags inconsistent data for review and resolution by the tracking system manager. This information is then cross-checked with compliance data submitted by reporting companies. The GPD maintains a user's manual for the ATS that specifies the standard operating procedures for data entry and data analysis. Regional inspectors perform inspections and audits on-site at the facilities of producers, importers, and exporters. These audits verify the accuracy of compliance data submitted to EPA through examination of company records.

Data Quality Reviews: The Government Accounting Office (GAO) completed a review of U.S. participation in five international environmental agreements, and analyzed data submissions from the U.S. under the Montreal Protocol on Substances the Deplete the Ozone Layer. No deficiencies were identified in their January 2003 report.

Data Limitations: None. Data are required by the Clean Air Act.

Error Estimate: None

New/Improved Data or Systems: The GPD continues to explore an improved system whereby direct electronic reporting would be possible.

References: See http://www.epa.gov/ozone/desc.html for additional information on ODSs. See http://www.unep.ch/ozone/montreal.shtml for additional information about the Montreal Protocol. See http://www.unmfs.org/ for more information about the Multilateral Fund.

EFFICIENCY MEASURES/MEASUREMENT DEVELOPMENT PLANS

EPA continues to place a great emphasis on improving its performance measures. In addition to and complementing the Agency's outcome-based environmental performance measures, some programs are developing efficiency measures. Efficiency measures are structured as a ratio of key program inputs (e.g. time, dollars, FTE) to program outputs or outcomes. They are intended to provide EPA programs with additional information that can be used for sound decision-making and program management.

Below are EPA's proposed efficiency measures for selected programs.

Stratospheric Ozone: For every $50 invested by EPA in the domestic ODS phaseout program and the Multilateral Fund, the US will avoid 1 skin cancer fatality related to UV radiation exposure. This outcome assumes that the US and other Parties to the Montreal Protocol achieve planned phaseout targets, and that present funding levels are continued.

STATUTORY AUTHORITIES

Clean Air Act Amendments of 1990 (CAA), Title I, Parts A and D (42U.S.C. 7401-7434, 7501 7515), Title V (42 U.S.C. 7661-7661f), and Title VI (42 U.S.C. 7671-7671q)
Pollution Prevention Act of 1990 (42 U.S.C. 13101-13109)
Resource Conservation and Recovery Act (42 U.S.C. 6921-6926 and 6938) sections 3001-3006 and 3017
The Montreal Protocol on Substances that Deplete the Ozone Layer

OBJECTIVE: Radiation

Through 2008, working with partners, EPA will minimize unnecessary releases of radiation and be prepared to minimize impacts to human health and the environment should unwanted releases occur.

Resource Summary
(Dollars in Thousands)

	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	FY 2005 Req. v. FY 2004 Pres Bud
Radiation	**$30,046.8**	**$34,858.9**	**$34,718.0**	**($141.0)**
Environmental Program & Management	$19,881.9	$21,060.8	$20,914.1	($146.7)
Hazardous Substance Superfund	$3,058.4	$3,027.2	$3,207.1	$179.8
Science & Technology	$6,284.3	$9,797.7	$9,574.9	($222.8)
Building & Facilities	$715.4	$817.4	$868.7	$51.3
Inspector General	$106.6	$155.8	$153.2	(-$2.6)
Total Workyears	168.1	185.0	183.9	-1.2

Program Project
(Dollars in Thousands)

	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	FY 2005 Req. v. FY 2004 Pres Bud
Radiation: Protection	$15,743.2	$17,392.7	$15,620.4	($1,772.3)
Radiation: Response Preparedness	$4,128.8	$4,081.2	$4,849.9	$768.7
Homeland Security: Preparedness, Response, and Recovery	$998.3	$3,703.6	$4,144.3	$440.7
Administrative Projects	$9,176.5	$9,681.4	$10,103.4	$421.9
TOTAL	**$30,046.8**	**$34,858.9**	**$34,718.0**	**($141.0)**

ANNUAL PERFORMANCE GOALS AND MEASURES

Ensure WIPP Safety

In 2005 Certify that 40,000 55-gallon drums of radioactive waste (containing approximately 120,000 curies) shipped by DOE to the Waste Isolation Pilot Plant are permanently disposed of safely and according to EPA standards.

In 2004 Certify that 36,000 55-gallon drums of radioactive waste (containing approximately 108,000 curies) shipped by DOE to the Waste Isolation Pilot Plant are permanently disposed of safely and according to EPA standards.

In 2003 36,041 drums (55 gallon) of radioactive waste shipped by DOE to the Waste Isolation Pilot Plant were permanently disposed of safely and according to EPA standards.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Number of 55-Gallon Drums of Radioactive Waste Disposed of According to EPA Standards	36,041	36,000	40,000	Drums

Baseline: The Waste Isolation Pilot Plant (WIPP) near Carlsbad, NM was opened in May 1999 to accept radioactive transuranic waste. By the end of FY 2003, approximately 73,000 (cumulative) 55 gallon drums will be safely disposed. In FY 2005, EPA expects that DOE will ship an additional 40,000 55-gallon drums of waste. Through FY 2004, EPA expects that DOE will have shipped safely and according to EPA standards, approximately 13% of the planned waste volume, based on disposal of 860,000 drums over the next 40 years. Number of drums shipped to the WIPP facility on an annual basis is dependent on DOE priorities and funding. EPA volume estimates are based on projecting the average shipment volumes over 40 years with an initial start up.

Build National Radiation Monitoring System

In 2005 EPA will purchase 60 additional state of the art monitoring units and initiate deployment to sites selected based on population and geographical coverage. All old sampling will be replaced and population coverage will be expanded to 60%.

In 2004 EPA will purchase 60 state of the art radiation monitoring units thereby increasing EPA radiation monitoring capacity and population coverage from 37% of the contiguous U.S. population in FY 2002 to 50% in FY 2004.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Purchase and Deploy State-of-the Art Monitoring Units		60	60	Units Purchased

Baseline: The current fixed monitoring system, part of the Environmental Radiation Ambient Monitoring System, was developed in the 1960s for the purpose of monitoring radioactive fallout from nuclear weapons testing. The system currently consists of 52 old, low-tech air particulate samplers which provide coverage in cities which represent approximately 24% of the population. By 2005, EPA will upgrade the old system by purchasing 120 state-of-the-art units which wil be strategically located to cover approximatley 60% of the population. The current system's air samplers will be retired from service due to age, although some may be retained for emergency use.

Homeland Security - Readiness & Response

In 2005 Verify that 50 percent of EPA's Radiological Emergency Response Team (RERT) members meet scenario-based response criteria.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Percentage of EPA RERT members that meet scenario-based criteria			50	Percent

Baseline: Currently, EPA assesses RERT readiness based on the ability of the RERT to: (1) provide effective field response, as defined today; (2) support coordination centers; and 3) provide analytical capabilities throughout as needed to support a single small-to-medium scale incident. These evaluation criteria will be reevaluated and revised in response to the Department of Homeland Security development of critieria for the Nuclear Incident Response Team established under the Homeland Security Act of 2002, which includes EPA RERT assets.

VERIFICATION AND VALIDATION OF PERFORMANCE MEASURES

FY 2005 Performance Measure: Purchase and Deploy State-of-Art Monitoring Units

Performance Data: Output Measure. Data from the near real-time gamma component of the Environmental Radiation Ambient Monitoring System (ERAMS) will be stored in an internal EPA database at the National Air and Radiation Environmental Laboratory (NAREL) in Montgomery, Alabama. EPA monitors for radiation to provide data for nuclear and radiological emergency response assessments; to provide data on ambient levels of radiation in the environment for baseline and trend analysis; and to inform the general public and public officials.

Data Source: Environmental Radiation Ambient Monitoring System (ERAMS). A total of 60 near real-time monitoring units will provide data to the database at NAREL.

Methods, Assumptions and Suitability: Assuming that funding is secured during future years and the project receives all necessary approvals, the existing air sampling equipment will be replaced with state-of-the art air monitors that include near real-time gamma radiation detection capability. Addition of detectors and communication systems will provide notification about significant radioactive contamination events to decision-makers within hours

QA/QC Procedures: Quality Assurance and Quality Control Procedures will follow the Agency guidelines and be consistent with a specific Quality Assurance Plan that is being developed for the project. All monitoring equipment will be periodically calibrated with reliable standards and routinely checked for accuracy with onsite testing devices. Laboratory analyses of air filters and other environmental media are closely controlled in compliance with the NAREL Quality Management Plan and applicable Standard Operating Procedures.

Data Quality Reviews: The database will screen all incoming data from the monitoring systems for abnormalities as an indicator of either a contamination event or an instrument malfunction. Data will be held in a secure portion of the database until verified by trained personnel. Copies of quality assurance and quality control testing will also be maintained to assure the quality of the data.

Data Limitations: Data are limited in near real-time to gamma emitting radionuclide identification and quantification. Radiation levels from gamma-emitting nuclides that will be so low as to be "undetectable" will be significantly below health concerns that require immediate action. Lower levels of radioactive materials in the samples will be measured through laboratory based analyses and data will be available within days after the sample is received. Data will not be available to the general public or others, except relevant decision-makers, until verified by trained personnel.

Error Estimate: The overall error in detection capability is estimated to be within 50% of the actual concentration based on previous experience with similar measurement systems. An error analysis will be performed on the prototype systems during the process of detector selection.

New/Improved Performance Data or Systems: New air samplers will maintain steady flow rates that are measured during operation and corrected for varying environmental conditions. Addition of gamma spectrometric detectors and computer-based multi-channel analyzers to the air samplers provide near real-time analyses of radioactive content in particles captured by the filter. In addition to data collection, the onboard computer systems can communicate results of analyses back to a central database and even identify abnormal conditions that might require action. These improvements not only include higher quality data, but also will provide information regarding contamination events to decision-makers within hours instead of days. The number and location of monitoring sites will be improved to provide representative sampling for much more of the nation's population.

References: For a additional information about the continuous monitoring system, ERAMS see: http://www.epa.gov/narel/erams/aboutus.html#mission

FY 2005 Performance Measure: Drums of Radioactive Waste Disposed of according to EPA Standards.

Performance Data: The Department of Energy (DOE) Waste Isolation Pilot Plant (WIPP) database contains the number of drums shipped by DOE waste generator facilities and placed in the DOE WIPP. The WIPP is a DOE facility located in southeastern New Mexico, 26 miles from Carlsbad. The WIPP Land Withdrawal Act was passed by Congress in October 1992 and amended in September 1996. The act transferred the land occupied by the WIPP to DOE and gave EPA regulatory responsibility for determining whether the facility complies with radioactive waste disposal standards.

Data Source: Department of Energy

Methods, Assumptions and Suitability: N/A

QA/QC Procedures: The performance data used by EPA are collected and maintained by DOE. Under EPA's WIPP regulations (available on the Internet: http://www.epa.gov/radiation/wipp/background.htm, all DOE WIPP-related data must be collected and maintained under a comprehensive quality assurance program meeting consensus standards developed by the American Society of Mechanical Engineers (ASME) (available on the Internet: http://www.asme.org/codes/). EPA conducts regular inspections to ensure that these quality assurance systems are in place and functioning properly; no additional QA/QC of the DOE data is conducted by EPA.

Data Quality Reviews: N/A

Data Limitations: The DOE WIPP database contains the number of drums shipped by DOE waste generator facilities and placed in the DOE WIPP. Currently, there are five DOE waste generator facilities that are approved to generate and ship waste: Los Alamos National Laboratory, Rocky Flats Environmental Technology Site, Hanford Site, Idaho National Engineering and Environmental Laboratory, Savannah River Site.

Before DOE waste generator facilities can ship waste to the WIPP, EPA must approve the waste characterization controls and quality assurance procedures for waste identification at these sites. EPA conducts frequent independent inspections and audits at these sites to verify continued compliance with radioactive waste disposal standards and to determine if DOE is properly tracking the waste and adhering to specific waste component limits. Since 1998, EPA has completed over 60 inspections prior to shipment of waste to the WIPP facility. Once EPA gives its approval, the number of drums shipped to the WIPP facility on an annual basis is dependent on DOE priorities and funding. EPA volume estimates are based on projecting the average shipment volumes over 40 years with an initial start up.

New/Improved Data or Systems: None

References: The Department of Energy National TRU Waste Management Plan Quarterly Supplement http://www.wipp.ws/library/caolib.htm#Controlled contains information on the monthly volumes of waste that are received at the DOE WIPP.

FY 2005 Performance Measure: Percentage of EPA RERT members that meet scenario-based criteria.

Performance Data: To determine the effectiveness of RERT performance, an output measure has been developed that scores RERT members on a scale of one (1) to 100 against scenario-based criteria. A baseline evaluation was performed in Fiscal Year (FY) 2003, based on the effectiveness of the RERT in responses to actual incidents and a major national exercise (TOPOFF2). RERT members were evaluated in their ability to: (1) provide effective field response, (2) support coordination centers, and (3) provide analytical capabilities and throughput as needed to support a single small-to-medium scale incident. Overall RERT effectiveness in this baseline analysis was measured at approximately 13 percent. In FY 2005, however, the evaluation criteria will need to be reevaluated and revised in response to the changes enacted by the Homeland Security Act of 2002. Under this Act, the Department of Homeland Security (DHS) is required to develop evaluation criteria and test the effectiveness of the Nuclear Incident Response Team (NIRT), which will include EPA RERT assets. Thus, the output measure tentatively outlined above will be modified in cooperation with DHS to meet their needs.

Data Source: Beginning in FY 2005, EPA expects the Department of Homeland Security to maintain the data. DHS is responsible for assuring that all Federal Emergency Response assets maintain an adequate level of readiness (Homeland Security Act of 2002). EPA assumes they also will maintain a data system to evaluate and assess the readiness of assets across the federal government. EPA will perform evaluations of its own assets and report results under this measure, but must rely on the DHS data source for key information.

Methods, Assumptions and Suitability: N/A

QA/QC Procedures: N/A

Data Quality Reviews: N/A

Data Limitations: The expectations for performance of EPA's RERT are currently evolving. Under Section 501 of the Homeland Security Act of 2002, Department of State's (DOS) Under Secretary for Emergency Preparedness and Response will establish standards for EPA RERT assets as part of the new Nuclear Incident Response Team. DHS will also evaluate the NIRT's performance against these new standards. These criteria have not yet been developed. In addition, the requirements for the RERT (i.e., what is actually expected of RERT members during a response) may also change. This uncertainty means that the current evaluation may not effectively reflect future criteria.

New/Improved Data or Systems: None

References: The Homeland Security Act of 2002

STATUTORY AUTHORITIES

Atomic Energy Act of 1954, as amended, 42 U.S.C 2011 et seq. (1970), and Reorganization Plan #3 of 1970
Clean Air Act Amendments of 1990 (CAA)
Comprehensive Environmental Response Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA)
Energy Policy Act of 1992, P.L. 102-486
Executive Order 12241 of September 1980, National Contingency Plan, 3 CFR, 1980
Executive Order 12656 of November 1988, Assignment of Emergency Preparedness Responsibilities, 3 CFR, 1988.
Nuclear Waste Policy Act of 1982
Public Health Service Act, as amended, 42 U.S.C 201 et seq.
Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, 42 U.S.C 5121 et seq.
Safe Drinking Water Act
Title X IV of the National Defense Authorization Act of 1996 (Nunn-Lugar II)
Uranium Mill Tailings Radiation Land Withdrawl Act of 1978
Waste Isolation Pilot Plan (WIPP) Land Withdrawal Act

OBJECTIVE: Reduce Greenhouse Gas Intensity

Through EPA's voluntary climate protection programs, contribute 45 million metric tons of carbon equivalent (MMTCE) annually to the President's 18 percent greenhouse gas intensity improvement goal by 2012. (An additional 75 MMTCE to result from the sustained growth in the climate programs are reflected in the Administration's business-as-usual projection for greenhouse gas intensity improvement.)

Resource Summary
(Dollars in Thousands)

	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	FY 2005 Req. v. FY 2004 Pres Bud
Reduce Greenhouse Gas Intensity	**$99,836.4**	**$106,936.5**	**$108,389.3**	**$1,452.9**
Environmental Program & Management	$97,647.6	$105,343.7	$106,712.6	$1,368.9
Science & Technology	$750.0	$0.0	$0.0	$0
Buildings & Facilities	$965.4	$969.6	$1,044.9	$75.4
Inspector General	$473.5	$623.2	$631.8	$8.6
Total Workyears	251.3	244.1	244.6	0.5

Program Project
(Dollars in Thousands)

	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	FY 2005 Req. v. FY 2004 Pres Bud
Climate Protection Program	$82,169.5	$91,289.6	$91,961.3	$671.7
Congressionally Mandated Projects	$1,018.2	$0.0	$0.0	$0.0
Administrative Projects	$16,648.7	$15,646.9	$16,428.0	$781.2
TOTAL	**$99,836.4**	**$106,936.5**	**$108,389.3**	**$1,452.9**

ANNUAL PERFORMANCE GOALS AND MEASURES

Reduce Greenhouse Gas Emissions

In 2005 Greenhouse gas emissions will be reduced from projected levels by approximately 90 MMTCE per year through EPA partnerships with businesses, schools, state and local governments, and other organizations.

In 2004 Greenhouse gas emissions will be reduced from projected levels by approximately 81 MMTCE per year through EPA partnerships with businesses, schools, state and local governments, and other organizations.

In 2003 End of year FY 2003 data will be available in mid-2004 to verify that Greenhouse gas emissions will be reduced from projected levels by approximately 72.2 MMTCE per year through EPA partnerships with businesses, schools, state and local governments, and other organizations.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Annual Greenhouse Gas Reductions - All EPA Programs	Data Lag	81.0	90.2	MMTCE
Greenhouse Gas Reductions from EPA's Buildings Sector Programs (ENERGY STAR)	Data Lag	21.4	23.8	MMTCE
Greenhouse Gas Reductions from EPA's Industrial Efficiency/Waste Management Programs	Data Lag	7.3	8	MMTCE
Greenhouse Gas Reductions from EPA's Industrial Methane Outreach Programs	Data Lag	18.1	19.1	MMTCE
Greenhouse Gas Reductions from EPA's Industrial HFC/PFC Programs	Data Lag	29.6	34.4	MMTCE
Greenhouse Gas Reductions from EPA's Transportation Programs	Data Lag	2.6	2.9	MMTCE
Greenhouse Gas Reductions from EPA's State and Local Programs	Data Lag	2.0	2.0	MMTCE

Baseline: The baseline for evaluating program performance is a projection of U.S. greenhouse gas emissions in the absence of the U.S. climate change programs. The baseline was developed as part of an interagency evaluation of the U.S. climate change programs in 2002, which built on similar baseline forecasts developed in 1997 and 1993. Baseline data for carbon emissions related to energy use is based on data from the Energy Information Agency (EIA) and from EPA's Integrated Planning Model of the U.S. electric power sector. Baseline data for non-carbon dioxide (CO2) emissions, including nitrous oxide and other high global warming potential gases are maintained by EPA. Baseline information is discussed at length in the U.S. Climate Action Report 2002 (www.epa.gov/globalwarming/publications/car/index.html), which provides a discussion of differences in assumptions between the 1997 baseline and the 2002 update, including which portion of energy efficiency programs are included in the estimates. EPA develops the non-CO2 emissions baselines and projections using information from partners and other sources. EPA continues to develop annual inventories as well as update methodologies as new information becomes available.

Reduce Energy Consumption

In 2005 Reduce energy consumption from projected levels by more than 120 billion kilowatt hours, contributing to over $8.5 billion in energy savings to consumers and businesses.

In 2004 Reduce energy consumption from projected levels by more than 110 billion kilowatt hours, contributing to over $7.5 billion in energy savings to consumers and businesses.

In 2003 End of year FY 2003 data will be available in late 2004 to verify the reduction in energy consumption from projected levels by more than 95 billion kilowatt hours, contributing to over $6.5 billion in energy savings to consumers and businesses.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Annual Energy Savings - All EPA Programs	Data Lag	110	120	Billion kWh

Baseline: The baseline for evaluating program performance is a projection of U.S. greenhouse gas emissions in the absence of the U.S. climate change programs. The baseline was developed as part of an interagency evaluation of the U.S. climate change programs in 2002, which built on similar baseline forecasts developed in 1997 and 1993.

Baseline data for carbon emissions related to energy use is based on data from the Energy Information Agency (EIA) and from EPA's Integrated Planning Model of the U.S. electric power sector. Baseline data for non-carbon dioxide (CO2) emissions, including nitrous oxide and other high global warming potential gases are maintained by EPA. Baseline information is discussed at length in the U.S. Climate Action Report 2002 (www.epa.gov/globalwarming/publications/car/index.html), which provides a discussion of differences in assumptions between the 1997 baseline and the 2002 update, including which portion of energy efficiency programs are included in the estimates. EPA develops the non-CO2 emissions baselines and projections using information from partners and other sources. EPA continues to develop annual inventories as well as update methodologies as new information becomes available.

VERIFICATION AND VALIDATION OF PERFORMANCE MEASURES

FY 2005 Performance Measure: Annual Greenhouse Gas Emissions Reductions overall and by Sector

Performance Database: Climate Protection Partnerships Division Tracking System.

Data Source: Baseline data for carbon emissions related to energy use comes from the Energy Information Agency (EIA) and from EPA's Integrated Planning Model of the U.S. electric power sector. Baseline data for non-carbon dioxide (CO_2) emissions, including nitrous oxide and other high global warming potential gases, are maintained by EPA. Baseline information is discussed at length in the U.S. Climate Action Report 2002. EPA develops the carbon and non-CO_2 emissions baselines and projections using information from partners and other sources. Data collected by EPA's voluntary programs include partner reports on facility- specific improvements (e.g. space upgraded, kilowatt-hours (kWh) reduced), national market data on shipments of efficient products, and engineering measurements of equipment power levels and usage patterns.

Methods, Assumptions, and Suitability: Most of the voluntary climate programs' focus is on energy efficiency. For these programs, EPA estimates the expected reduction in electricity consumption in kilowatt-hours (kWh). Emissions prevented are calculated as the product of the kWh of electricity saved and an annual emission factor (e.g., million metric tons carbon equivalent (MMTCE) prevented per kWh). Other programs focus on directly lowering greenhouse gas emissions (e.g., Natural Gas STAR, Landfill Methane Outreach, and Coalbed Methane Outreach); for these, greenhouse gas emission reductions are estimated on a project-by-project basis. EPA maintains a "tracking system" for emissions reductions.

QA/QC Procedures: EPA devotes considerable effort to obtaining the best possible information on which to evaluate emissions reductions from voluntary programs. Peer-reviewed carbon-conversion factors are used to ensure consistency with generally accepted measures of Greenhouse Gas (GHG) emissions, and peer-reviewed methodologies are used to calculate GHG reductions from these programs.

Data Quality Review: The Administration evaluates its climate programs using an interagency approach. The second such interagency evaluation included participants from EPA and the Departments of State, Energy, Commerce, Transportation, and Agriculture. The previous evaluation was published in the *U.S. Climate Action Report-1997*. A 1997 audit by EPA's Office of the Inspector General concluded that the climate programs examined "used good management practices" and "effectively estimated the impact their activities had on reducing risks to health and the environment..."

Data Limitations: These are indirect measures of GHG emissions (carbon conversion factors and methods to convert material-specific reductions to GHG emissions reductions). Also, the voluntary nature of the programs may affect reporting. Further research will be necessary in order to fully understand the links between GHG concentrations and specific environmental impacts, such as impacts on health, ecosystems, crops, weather events, and so forth.

Error Estimate: These are indirect measures of GHG emissions. Although EPA devotes considerable effort to obtaining the best possible information on which to evaluate emissions reductions from voluntary programs, errors in the performance data could be introduced through uncertainties in carbon conversion factors, engineering analyses, and econometric analyses.

New/Improved Data or Systems: The Administration regularly evaluates the effectiveness of its climate programs through interagency evaluations. EPA continues to update inventories and methodologies as new information becomes available.

References: The U.S. Climate Action Report 2002 is available at: www.epa.gov/globalwarming/publications/car/index.html. The accomplishments of many of EPA's voluntary programs are documented in the Climate Protection Partnerships Division Annual Report. The most recent version is *Change for the Better: Energy Star and Other Voluntary Programs*, Climate Protection Partnerships Division 2002 Annual Report.

FY 2005 Performance Measure: Annual Energy Savings

Performance Database: Climate Protection Partnerships Division Tracking System

Data Source: Data collected by EPA's voluntary programs include partner reports on facility specific improvements (e.g. space upgraded, kilowatt-hours (kWh) reduced), national market data on shipments of efficient products, and engineering measurements of equipment power levels and usage patterns.

Methods, Assumptions, and Suitability: Most of the voluntary climate programs' focus is on energy efficiency. For these programs, EPA estimates the expected reduction in electricity consumption in kilowatt-hours (kWh). Emissions prevented are calculated as the product of the kWh of electricity saved and an annual emission factor (e.g., MMTCE prevented per kWh). Other programs focus on directly lowering greenhouse gas emissions (e.g., Natural Gas STAR, Landfill Methane Outreach, and Coalbed Methane Outreach); for these, greenhouse gas emission reductions are estimated on a project-by-project basis. EPA maintains a tracking system for energy reductions.

Energy bill savings are calculated as the product of the kWh of energy saved and the cost of electricity for the affected market segment (residential, commercial, or industrial) taken from the Energy Information Administration's (EIA) *Annual Energy Outlook 2002* and *Annual Energy Review 2000* for each year in the analysis (1993-2012). Energy bill savings also include revenue from the sale of methane and/or the sale of electricity made from captured methane. The net present value (NPV) of these savings was calculated using a 4-percent discount rate and a 2001 perspective.

QA/QC Procedures: EPA devotes considerable effort to obtaining the best possible information on which to evaluate energy savings from its voluntary programs.

Data Quality Review: The Administration regularly evaluates the effectiveness of its climate programs through interagency evaluations. The second such interagency evaluation included participants from EPA and the Departments of State, Energy, Commerce, Transportation, and Agriculture. The results were published in the *U.S. Climate Action Report-2002* as part of the United States' submission to the Framework Convention on Climate Change (FCCC). The previous evaluation was published in the *U.S. Climate Action Report-1997*. A 1997 audit by EPA's Office of the Inspector General concluded that the climate programs examined "used good management practices" and "effectively estimated the impact their activities had on reducing risks to health and the environment."

Data Limitations: The voluntary nature of programs may affect reporting. In addition, errors in the performance data could be introduced through uncertainties in engineering analyses and econometric analyses.

Error Estimate: Although EPA devotes considerable effort to obtaining the best possible information on which to evaluate emissions reductions from voluntary programs, errors in the performance data could be introduced through uncertainties in engineering analyses and econometric analyses.

New/Improved Data or Systems: The Administration regularly evaluates the effectiveness of its climate programs through interagency evaluations. EPA continues to update inventories and methodologies as new information becomes available.

References: The U.S. Climate Action Report 2002 is available at: www.epa.gov/globalwarming/publications/car/index.html. The accomplishments of many of EPA voluntary programs are documented in the Climate Protection Partnerships Division Annual Report. The most recent version is *Change for the Better: Energy Star and Other Voluntary Programs*, Climate Protection Partnerships Division 2002 Annual Report.

STATUTORY AUTHORITIES

Clean Air Act Amendments, 42 U.S.C. 7401 et seq. - Sections 102, 103, 104, and 108
Clean Water Act, 33 U.S.C. 1251 et seq. - Section 104
Federal Technology Transfer Act, 15 U.S.C. - Section 3701a
Global Climate Protection Act, 15 U.S.C. 2901 - Section 1103
National Environmental Policy Act, 42 U.S.C. 4321 et seq. - Section 102
Pollution Prevention Act, 42 U.S.C. 13101 et seq. - Sections 6602, 6603, 6604, and 6605
Solid Waste Disposal Act, 42 U.S.C. 6901 et seq. - Section 8001

OBJECTIVE: Enhance Science and Research

Through 2010, provide and apply sound science to support EPA's goal of clean air by conducting leading-edge research and developing a better understanding and characterization of environmental outcomes under Goal 1.

Resource Summary
(Dollars in Thousands)

	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	FY 2005 Req. v. FY 2004 Pres Bud
Enhance Science and Research	**$132,577.0**	**$128,016.6**	**$130,863.6**	**$2,847.1**
Environmental Program & Management	$16,904.8	$18,216.5	$18,723.8	$507.4
Science & Technology	$113,313.3	$107,353.4	$109,544.0	$2,190.6
Buildings and Facilities	$1715.0	$1,710.5	$1,840.5	$130.0
Inspector General	$643.9	$736.2	$755.3	$19.1
Total Workyears	385.2	371.2	372.4	1.1

Program Project
(Dollars in Thousands)

	FY 2003 Actuals	FY 2004 Pres. Bud.	FY 2005 Pres. Bud.	FY 2005 Req. v. FY 2004 Pres Bud
Climate Protection Program	$19,588.0	$17,320.3	$17,458.9	$138.6
Radiation: Protection	$1,367.0	$1,472.1	$1,361.5	($110.6)
Research: Air Toxics	$14,257.2	$15,700.9	$17,638.9	$1,938.0
Research: Particulate Matter	$64,437.9	$63,620.6	$63,690.8	$70.2
Research: Troposphere Ozone	$4,804.2	$4,942.3	$4,900.9	($41.4)
Clean Air Allowance Trading Programs	$4,042.7	$3,991.2	$3,991.2	$0.0
Congressionally Mandated Projects	$3,810.2	$0.0	$0.0	$0.0
Federal Support for Air Quality Management	$408.0	$380.7	$482.4	$101.7
Federal Support for Air Toxics Program	$402.0	$403.1	$405.4	$2.3
Administrative Projects	$19,459.8	$20,185.4	$20,933.6	$748.3
TOTAL	**$132,577.0**	**$128,016.6**	**$130,863.6**	**$2,847.1**

ANNUAL PERFORMANCE GOALS AND MEASURES

Particulate Matter Research

Long-term Outcome Measusre	Measure under development.
Annual Measure	Measure under development.
Efficiency Measure	Measure under development.

Clean Automotive Technology

In 2005 Transfer hybrid powertrain components, originally developed for passenger car applications, to meet size, performance, durability, and towing requirements of Sport Utility Vehicle and urban delivery vehicle applications with an average fuel economy improvement of 30% over the baseline.

In 2004 Transfer hybrid powertrain components, originally developed for passenger car applications, to meet size, performance, durability, and towing requirements of Sport Utility Vehicle and urban delivery vehicle applications with an average fuel economy improvement of 25% over the baseline.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Fuel Economy of EPA-Developed SUV Hybrid Vehicle over EPA Driving Cycles Tested		25.2	26.3	MPG

Baseline: The average fuel economy of all SUVs sold in the US in 2001 is 20.2 mpg. Values for 2002, 2003, and 2004 represent 15%, 20%, and 25% improvements over this baseline, respectively. The long-term target is to demonstrate a practical and affordable powertrain that is 30% more efficient by 2005, and 100% more efficient by 2010.

Research

PM Measurement Research

In 2005 Deliver and transfer improved receptor models and data on chemical compounds emitted from sources so that, by 2006, EPA's Office of Air and Radiation and the states have the necessary new data and tools to predict, measure, and reduce ambient PM and PM emissions to attain the existing PM National Ambient Air Quality Standards (NAAQS) for the protection of public health.

Performance Measures:	**FY 2003 Actuals**	**FY 2004 Pres. Bud.**	**FY 2005 Pres. Bud.**	
Improved receptor models and data on chemical compounds emitted from sources			09/30/05	models/ data

Baseline: Following designation of non-attainment areas for the Particulate Matter National Ambient Air Quality Standards in 2004 and 2005, states will need to immediately begin developing State Implementation Plans (SIPs). SIPs incorporate source emission reduction rules that once implemented lead to cleaner air and standards attainment. They are due to EPA three years after designation. SIP development is predicated on the availability of recent and credible information on source emission characteristics and receptor-oriented models that can identify sources contributing to locally observed PM concentrations based on their chemical signatures. A next update (FY 2005) of these constantly improving models and the latest in source signatures will be produced to help states with their SIPs as part of a weight of evidence approach that use these and chemical transport modeling to tag specific sources with reduction targets.

Beginning in FY 2005, regular evaluations by independent and external panels will provide reviews of EPA research programs' relevance, quality, and successful performance to date, in accordance with OMB's Investment Criteria for Research and Development. These evaluations will include an examination of a program's design to determine the appropriateness of a program's short-, intermediate-, and long-term goals and its strategy for attaining these. Reviewers will also qualitatively determine whether EPA has been successful in meeting its annual and long-term commitments for research. Recommendations and results from these reviews will improve the design and management of EPA research programs and help to measure their progress under the Government Performance and Results Act (GPRA).

VERIFICATION AND VALIDATION OF PERFORMANCE MEASURES

FY 2005 Performance Measure: Fuel Economy of EPA-Developed SUV Hybrid Vehicle over EPA Driving Cycles Tested

Performance Database: Fuel economy test data for both urban and highway test cycles under the EPA Federal Test Procedure for passenger cars.

Data Source: EPA fuel economy tests performed at the National Vehicle and Fuel Emissions Laboratory (NVFEL), Ann Arbor, Michigan

QA/QC Procedures: EPA fuel economy tests are performed in accordance with the EPA Federal Test Procedure and all applicable QA/QC procedures. Available on the Internet: http://www.epa.gov/otaq/sftp.htm.

Methods, Assumptions and Suitability: N/A

Data Quality Reviews: EPA's NVFEL laboratory is recognized as a national and international facility for fuel economy and emissions testing. NVFEL is also the reference point for private industry.

Data Limitations: Primarily due to EPA regulations, vehicle fuel economy testing is a well established and precise exercise with extremely low test to test variability (well less than 5%). Additional information is available on the Internet: http://www.epa.gov/otaq/testdata.html One challenge relates to fuel economy testing of hybrid vehicles (i.e., more than one source of onboard power), which is more complex than testing of conventional vehicles. EPA has not yet published formal regulations to cover hybrid vehicles. However, relevant information is available on the Internet: http://www.ctts.nrel.gov/analysis/hev_test/procedures.shtml

Error Estimate: N/A

New/Improved Data or Systems: EPA is using solid engineering judgment and consultations with other expert organizations (including major auto companies) to develop internal procedures for testing hybrid vehicles.

References: See http://www.epa.gov/otaq/testproc.htm for additional information about testing and measuring emissions at the NVFEL.

EFFICIENCY MEASURES\MEASUREMENT DEVELOPMENT PLANS

As a measure of efficiency, the Agency will track the time it takes to process particulate matter research grant proposals from RFA closure to submittal to EPA's Grants Administration Division. The Agency will also track the number of peer-reviewed particulate matter research journal articles produced per scientific/engineering FTE.

STATUTORY AUTHORITIES

Clean Air Act Amendments
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA)
Energy Policy Act of 1992
Federal Technology Transfer Act, 15 U.S.C. – Section 3701a
Global Climate Protection Act, 15 U.S.C. 2901 – Section 1103
National Climate Program Act (1997)
Nuclear Waste Policy Act of 1982
Pollution Prevention Act, 42 U.S.C. 13101 et seq. - Sections 6602, 6603, 6604, and 6605
Safe Drinking Water Act
U.S. Global Change Research Program Act of 1990
United Nations Framework Convention on Climate Change
Uranium Mill Tailings Radiation Control Act of 1978
Waste Isolation Pilot Plan (WIPP) Land Withdrawal Act